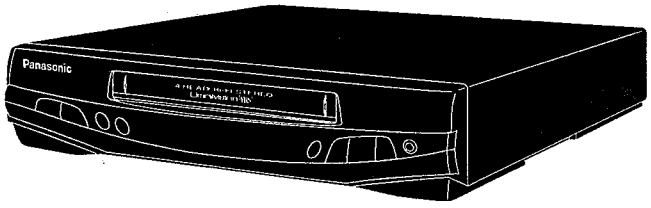
ORDER NO. MKS9801M301
B3

Service Manual

Video Cassette Recorder

Omnivision VHS



P PV-8400
P PV-8400-K
P PV-8401
P PV-8450
P PV-8450-K
Q VHQ840
Q VHQ860

SPECIFICATIONS

ITEM	SPECIFICATION	1	2
Power	Source: 120V AC ± 10%, 60 Hz ± 0.5%	○	○
	Consumption: Approx. 18 watts(Power on), Approx. 4.1 watts(Power off)	○	—
	Approx. 23 watts(Power on), Approx. 4.1 watts(Power off)	—	○
Video	Head: 4 rotary heads helical scanning system	○	○
	Input Level: VIDEO IN Jack (Phono type) 1.0 Vp-p 75Ω unbalanced Output Level: VIDEO OUT Jack (Phono type) 1.0 Vp-p 75Ω unbalanced Signal-to-Noise Ratio: SP: more than 43 dB LP/SLP: more than 41 dB Horizontal Resolution: Color/Monochrome: more than 230 lines	○	○
Audio	Head: Normal Mono: 1 stationary head	○	○
	Hi-Fi Stereo: 2 rotary heads	—	○
	Input Level: AUDIO IN Jack (Phono type) -10 dBv 50kΩ unbalanced	○	○
	Output Level: AUDIO OUT Jack (Phono type) -8 dBv 600Ω unbalanced	○	—
	AUDIO OUT Jack (Phono type) -8 dBv 1kΩ unbalanced	—	○
	Frequency Response: Normal Mono: SP: 100 Hz ~ 8 kHz	○	○
	LP: 100 Hz ~ 6 kHz	○	○
	SLP: 100 Hz ~ 5 kHz	○	○
	Hi-Fi Stereo: SP/LP/SLP: 20 Hz ~ 20 kHz	—	○
	Signal-to-Noise Ratio: Normal Mono: SP: more than 42 dB	○	○
	LP/SLP: more than 40 dB	○	○
	Hi-Fi Stereo: SP/LP/SLP: more than 60 dB	—	○
	Wow and Flutter: Normal Mono: SP: Less than 0.2% WRMS	○	○
	LP: Less than 0.3% WRMS	○	○
	SLP: Less than 0.4% WRMS	○	○
	Hi-Fi Stereo: Less than 0.015% WRMS	—	○

ITEM	SPECIFICATION	1	2
RF Out	CH 3/CH 4 switchable 72 dBμ (open voltage) 75Ω unbalanced	○	○
Tuner	Broadcast Channels: VHF 2 ~ 13, UHF 14 ~ 69 CABLE Channels: Midband A through I (14 ~ 22) Superband J through W (23 ~ 36) Hyperband AA ~ EEE (37 ~ 64) Lowband A-5 ~ A-1 (95 ~ 99) Special CABLE channel 5A (01) Ultraband 65 ~ 94, 100 ~ 125	○	○
Video Signal	EIA Standard (525 lines, 60 fields) NTSC Color Signal	○	○
Tape Speed	SP: 1-5/16 i.p.s (33.35 mm/sec), LP: 21/32 i.p.s (16.67 mm/sec), SLP: 7/16 i.p.s (11.12 mm/sec) Record/Playback Time: 8 Hrs with 160 min. type tape used in SLP mode FF/REW Time: Less than 3 min. (120 min. type tape)	○	○
Tape Format	Tape width 1/2" (12.7 mm) high density tape	○	○
Operating Condition	41°F(5°C) ~ 104°F(40°C) (Temperature) 10% ~ 75% (Humidity)	○	○
Dimension	14-15/16"(380 mm) (W) X 3-2/3"(93 mm) (H) X 12-3/16"(310 mm) (D)	○	○
Weight	7.5 lbs. (3.4 kg)	○	—
	7.7 lbs. (3.5 kg)	—	○

1. PV-8400/PV-8400-K/PV-8401/VHQ840
2. PV-8450/PV-8450-K/VHQ860

Weight and dimensions shown are approximate.
Designs and specifications are subject to change without notice.

Panasonic®/Quasar®

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Use Marks shown in the chart below to distinguish the different models included in this Service Manual.

MODEL	MARK	MODEL	MARK
PV-8400	A	PV-8450	E
PV-8400-K	B	PV-8450-K	F
PV-8401	C	VHQ860	G
VHQ840	D	NOT USED	Z

TABLE OF CONTENTS

SAFETY PRECAUTIONS

GENERAL GUIDELINES

1. **IMPORTANT SAFETY NOTICE**
   There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Layout, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.
2. An Isolation Transformer should always be used during the servicing of VCR whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks. It will also protect VCR from being damaged by accidental shorting that may occur during servicing.
3. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
4. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
5. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

LEAKAGE CURRENT COLD CHECK

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1M ohm and 5.2M ohm. When the exposed metal does not have a return path to the chassis, the reading must be infinity.

Hot-Check Circuit

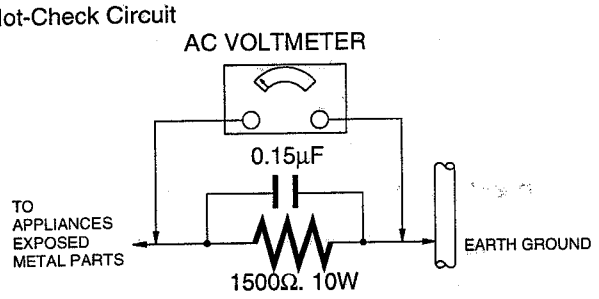


Figure 1

LEAKAGE CURRENT HOT CHECK (See figure 1.)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a 1.5K ohm, 10 watts resistor, in parallel with a 0.15 microfarad capacitor, between each exposed metallic part on the set and a good earth ground, as shown in figure 1.
3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks. Leakage current must not exceed 1/2 milliamp. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

PREVENTION OF ELECTRO-STATIC DISCHARGE (ESD) TO ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits, some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electrostatic discharge (ESD).

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should remove electrostatic charge for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an antistatic solder removal device. Some solder removal devices not classified as "antistatic (ESD protected)" can generate electrical charge sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

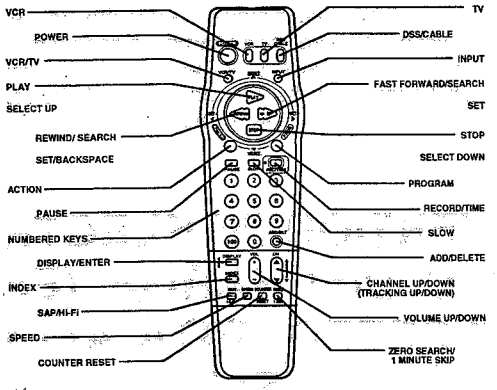
   CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).

"NOTE to CATV system installer:
This reminder is provided to call the CATV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical."

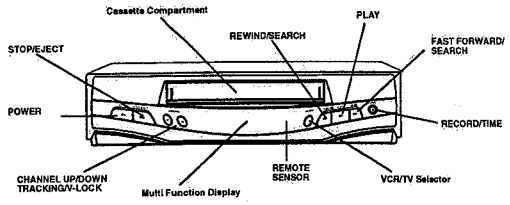
OPERATION GUIDE

Location of Controls (For Models PV-8400/PV-8400-K/PV-8401/PV-8450/PV-8450-K)

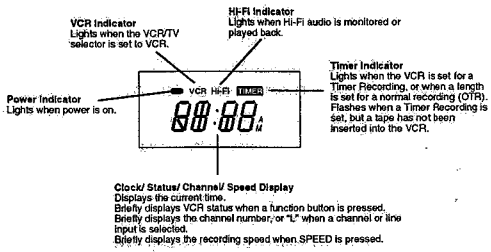
Remote Control Buttons



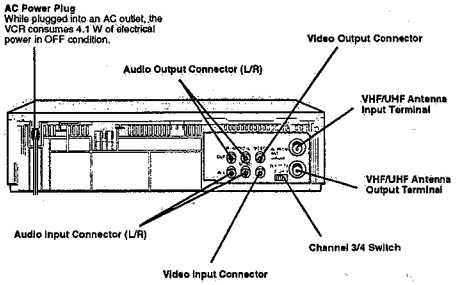
Front View of the VCR



Multi Function Display

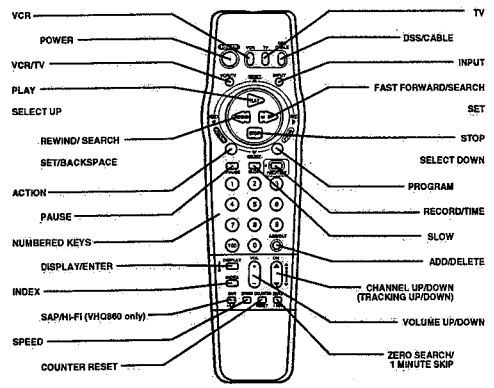


Rear View of the VCR



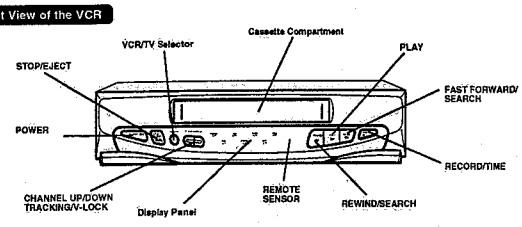
Location of Controls (For Models VHQ840/VHQ860)

Remote Control Buttons

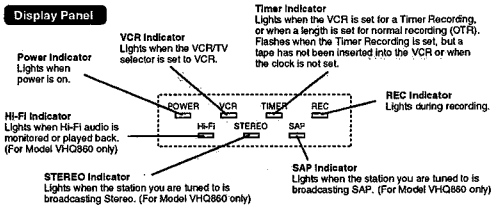


Model VHQ860 remote is shown here.

Front View of the VCR

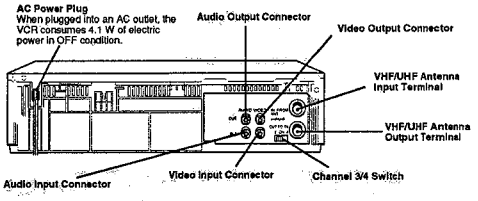


Display Panel

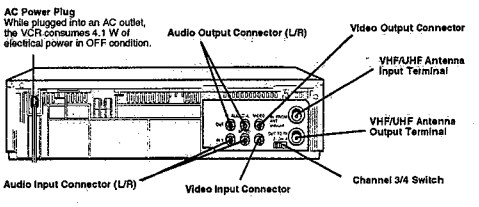


Rear View of the VCR

• For Model VHQ840



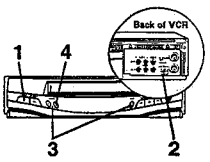
• For Model VHQ860



One Time VCR Setup

***Important:** If the remote control POWER, ACTION, PROG, CH▲/▼, INDEX, or ADD/DLT button does not work when pressed, press the VCR button on the remote and try the button again.

When the VCR is turned on for the first time, it automatically enters the setup mode.
Setup includes the following:
- Choose the language for on-screen menus and messages.
- Tell the VCR how your equipment is hookup so the VCR can correctly place channels into memory.
- Set the VCR ready for clock set.



To Set the Language, Channels, and Auto Clock

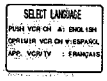
1 Turn the TV and VCR on.*

2 Tune your TV to the VCR output channel (the same one you set on the back of the VCR: CH3 or CH4).
- If you used audio/video jack connection, tune the TV to its video input.

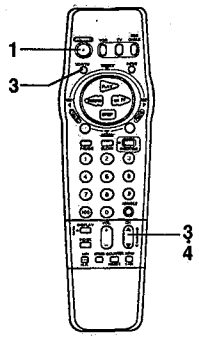
3 Press CH ▲ for English on-screen displays.

Or, press CH ▼ for Spanish on-screen displays.

Or, press VCR/TV for French on-screen displays.



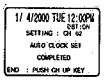
- You can also set the language using the buttons on the VCR.
- The VCR should be connected to an antenna or cable box.



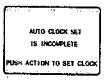
4 Press CH ▲ to start Channel Auto Set and Clock Auto Set.
- The following messages appear: "CH AUTO SET PROCEEDING" "AUTO CLOCK SET PROCEEDING"

or

Case 1



Case 2



- If you are using the CABLE/DSS BOX▶VCR▶TV connection method, only the cable box output channel will be placed in memory.

Using ▲▼◀▶ keys

Whenever a menu or program screen is displayed, the PLAY, STOP, REWIND, and FF buttons on the remote control function as ▲▼◀▶ only. For play, stop, rewind, and fast forward functions, use the buttons on the VCR.

Case 1

If the displayed time is correct, press CH ▲ to exit.
- This concludes one time VCR setup.
- See important note at the bottom of this page.

If the displayed time and DST. are not correct...

If you happen to live close to two time zones, the VCR have recognized the PBS channel (setting channel) in the wrong time zone. Please do the following to correct the situation.

a Make a note of the SETTING:CH number shown on-screen and press CH ▲ to exit.

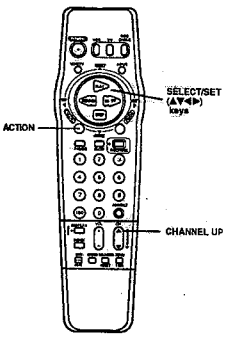
b Delete the setting channel from the VCR channel memory. (See "To Add or Delete a Channel" section.)

c Press ACTION to display the menu.

d Press ▲▼ to select "SET CLOCK," and then press ▶ to display the "SET CLOCK" screen.

e Press ▲▼ to select "AUTO CLOCK SET," and then press ▶ to display the "CLOCK AUTO SET" screen.

f Press CH ▲ to start Clock Auto Set.
- If you use a cable box and have multiple PBS stations, tune the cable box to a different PBS station and try auto clock set using the menu.



Case 2

If the screen above appears, auto clock set is not available in your area. Please set the clock manually as described below.

a Press ACTION to display the "SET CLOCK" screen.

b Press ▲▼ and ◀▶ to select and set the month, date, year, time, and DST. (Daylight Saving Time).

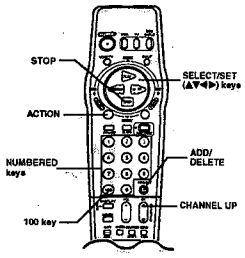
To Make Corrections,
repeatedly press ◀▶ to move the cursor to the incorrect entry and make the correction.

c Press ACTION twice to start the clock and exit this mode.

IMPORTANT NOTE FOR AUTO CLOCK SET
- Auto clock set will be performed when the VCR is turned off the first time each day. If you use a cable box and you want auto clock set to be performed, the cable box must be left on and tuned to the PBS channel before the VCR power is turned off.
- If you use a DSS receiver, it must be turned off for auto clock set.
- If you use Audio/Video Jack connection between the VCR and Cable Box or DSS receiver, you must also connect the RF coaxial cable in order to use the auto clock set and channel auto set features.

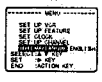
One Time VCR Setup

***Important:** If the remote control POWER, ACTION, PROG, CH▲/▼, INDEX, or ADD/DLT button does not work when pressed, press the VCR button on the remote and try the button again.



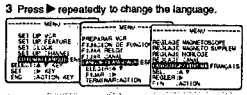
To Change On-Screen Display Language

1 Press ACTION to display the menu.



2 Press ▲▼ to select the language.
English: LANGUAGE
Spanish: IDIOMA
French: LANGUE

3 Press ▶ repeatedly to change the language.



4 Press ACTION to exit this mode.

To Add or Delete a Channel

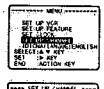
1 Select a channel using the NUMBERED keys to add or CH ▲/▼ to delete.

2 Press ADD/DLT to add or delete the channel.
- To select a channel once it's deleted, use the NUMBERED keys on the remote control.

To Replace Channels in Memory

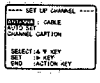
In case you have cable installed, etc.

1 Press ACTION* to display the menu.



2 Press ▲▼ to select "SET UP CHANNEL," and then press ▶ to display the "SET UP CHANNEL" screen.

3 Press ▲▼ to select "ANTENNA," and then press ▶ to set your antenna system (TV or CABLE).



4 Press ▲▼ to select "AUTO SET," and then press ▶ to display the "CHANNEL CLOCK AUTO SET" screen.
- If you use a cable box, turn it on and set it to the PBS channel in your time zone.
- To exit this mode, press ACTION twice.

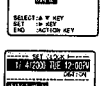
5 Press CH ▲ to start Channel Auto Set.
- Clock Auto Set will be performed when channels are replaced in memory. To cancel, press STOP when "AUTO CLOCK SET PROCEEDING" appears on-screen.

To Set or Reset the Clock

In case the clock is wrong, or a power failure occurred.

1 Press ACTION to display the menu.

2 Press ▲▼ to select "SET CLOCK," and then press ▶ to display the "SET CLOCK" screen.



3 Press ▲▼ to select "MANUAL," and then press ▶ to display the SET CLOCK screen.

4 Press ▲▼ and ◀▶ to select and set the date, time, and DST. (Daylight Saving Time).

5 Press ACTION twice to start the clock and exit this mode.

- For Auto Clock Set, select "AUTO CLOCK SET," and then press CH ▲ in step 3.

When Using the 100 key

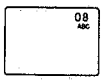
When selecting CABLE channels 100 to 125 with the NUMBERED keys, first press the 100 key and then enter the remaining two digits.
For example, to select channel 125:
Press NUMBERED keys 100, then 2, then 5.

NOTES:
- This VCR will accurately maintain its calendar up to Dec. 31, 2096, 11:59PM.
- Normal TV or Cable channels are automatically selected and placed in memory depending on how your VCR is hooked up.

On-Screen Displays (OSD)

Function & Channel Display

When a function button is pressed, e.g. PLAY, or you change channels, a 4 second display appears first in large and then small characters. (Some Station names may also appear if Channel Caption is set.)



Menu Screen

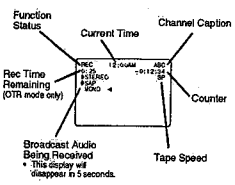
1 Press ACTION to display the menu.

2 Press ▲▼ and ▶ to make your selection.

- To get the most from each feature, please read the Operating Manual before attempting any operation.

VCR Status & Clock Display

Press DISPLAY to display or remove the overlay shown below.



- This display will disappear in 5 seconds.

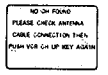
Blank Tape/ No Video Signal Indication

Whenever a blank section of a tape comes up in Play mode, or when the selected channel has no broadcast signal with the Blue Back ON/OFF Feature set to ON, the TV screen will turn solid blue.

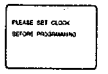
Warning and Instruction Displays

These displays will alert you of a missed operation or provide further instructions.

If no active channels are found for CHANNEL MEMORY...

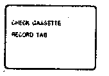


If you attempt to set or review a Timer Recording and the Clock is not set...



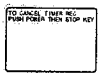
After a Timer Program has been set...

If you press REC on the remote control or VCR, and a cassette is inserted with no record tab...

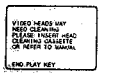


If you press PLAY, FF, REW, or REC on the remote control or VCR without a cassette inserted...

If you press POWER or STOP during a Timer Recording... (visible in VCR mode only)



If head cleaning becomes necessary while playing back a tape...



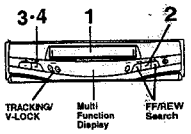
If you press a function button other than STOP/EJECT or POWER while the VCR is in VCR Lock mode...

If you press POWER, ACTION, or PROG on the remote while in TV or CABLE/DSS mode...

Playback a Tape

***Important:** If the remote control POWER, ACTION, PROG, CH▲/▼, INDEX, or ADD/DLT button does not work when pressed, press the VCR button on the remote and try the button again.

Check list before you begin.
- ☐ All connections are made.
- ☐ TV and VCR are plugged in.
- ☐ TV is turned on and set to the VCR channel (CH 3 or 4).



1 Insert a cassette.
- VCR power comes on automatically.
- "VCR" lights in the Multi Function Display.

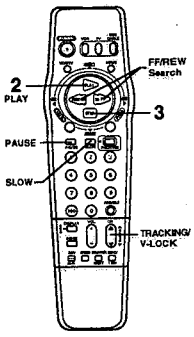
2 Press PLAY on the remote or VCR to start playback.
- Playback begins automatically if cassette has no record tab.

3 Press STOP on the remote or VCR to stop playback.
- To rewind the tape, press REW.

4 Press STOP/EJECT on the VCR to eject the cassette.
- You may eject a cassette with power on or off.

To Find a Particular Scene During Playback

Press REW or FF during playback to search for a scene.
- Search speed for SP mode tapes is 7 times and SLP mode tapes is 21 times the normal speed.
- Some noise bars will appear during search.



Special Effects During Playback

These features work best in SP or SLP mode. The sound will be muted.

Slow Motion Playback
Press SLOW to start slow motion playback during playback.
Press PLAY or SLOW to release.

Still (Freeze) Frame Picture
Press PAUSE to freeze and release the picture.
- To reduce picture noise, first press SLOW. Then, use CH (TRACKING) ▲/▼ to clear up the picture. Now, press PAUSE.

Frame by Frame Advance
In Still mode, hold down SLOW to advance the still picture one frame at a time. Press PAUSE to release.

Features for a Quality Picture

Digital Auto Picture
This feature automatically controls the video output signal for less noise depending on the tape condition.

Digital Auto Tracking
This feature continuously analyzes the signal and adjusts for optimum picture quality.

Manual Tracking Control (to reduce picture noise)
Use during Playback and Slow Motion mode to reduce picture noise. Press CH (TRACKING) ▲/▼ during playback until the picture clears up. To return to Auto Tracking mode, press POWER off and then on again.

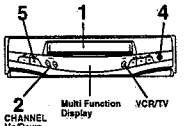
V-Lock Control (to reduce picture jitter)
In Still mode, CH (TRACKING) ▲/▼ operate as a V-Lock control. Press ▲/▼ until the picture is stabilized.

Caution:
Please inspect your cassette tapes and remove any loose or peeling labels to prevent them from becoming jammed in your unit.

NOTE
- After the VCR is in Still or Slow mode for 3 minutes, it will switch to the Stop mode automatically to protect the tape and the video head.

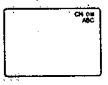
Record On a Tape

Check list before you begin.
- ☐ All connections are made.
- ☐ VCR is plugged in.
- ☐ TV is turned on and set to the VCR channel (CH 3 or 4).

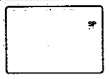


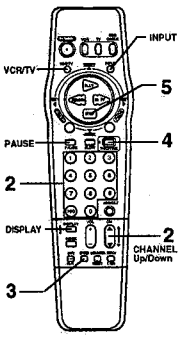
1 Insert a cassette with record tab.
- VCR power comes on automatically.

2 Press CH ▲/▼ or NUMBERED keys to select a channel.
- Or, press CHANNEL ▲/▼ on the VCR.
- Holding down CH ▲/▼ will increase the channel search speed.
- To record from an outside source, press CH ▲/▼ or INPUT to select "LINE".



3 Press SPEED to change the recording speed.
- SP = Standard Play ,
  LP = Long Play
  SLP = Super Long Play





4 Press REC/TIME on the remote control or VCR to start recording.
- To edit out unwanted portions, press PAUSE to pause the recording in progress.
  To release, press PAUSE again.
  (After the VCR has been in Pause mode for 5 minutes, it will stop automatically to protect the tape and video head.)

One Touch Timer Recording (OTR)
The VCR starts recording and turns itself off at a preset time.
In step 4, press REC/TIME repeatedly to set the length of the recording. Each press will change the stop time as shown.

Normal Rec → 0:30 → 1:00 → 1:30 → 2:00 → 3:00 → 4:00

- "TIMER" lights in the Multi Function Display.
- The remaining recording time can be displayed by pressing DISPLAY in OTR mode.

5 Press STOP to stop recording.
- Or, press STOP/EJECT on the VCR.

Record One Program While Watching Another

1 Press VCR/TV while recording is in progress to turn off the VCR indicator in the Multi Function Display.

2 Use the TV channel controls to select a program. The VCR will continue to record your program while you watch any channel you choose.
- To switch back and forth between the recording and viewing channel, press VCR/TV.

Selecting Channels at the VCR

1 Turn your TV and VCR on.
- VCR indicator lights on the Multi Function Display. If indicator doesn't light, press VCR/TV to turn it on.

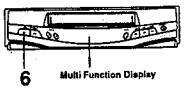
2 Use CH ▲/▼ on the remote control or VCR to select channels.
- To switch back to TV channel selection, press VCR/TV to turn VCR indicator off, or simply turn the VCR power off.

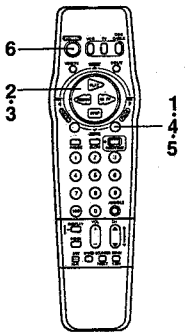
Timer Recording

***Important:** If the remote control POWER, ACTION, PROG, CH▲/▼, INDEX, or ADD/DLT button does not work when pressed, press the VCR button on the remote and try the button again.

You can set up the VCR to record a one time, daily, or weekly program while you are away or otherwise occupied. Up to 8 programs can be stored in memory.

Check list before you begin.
- ☐ All connections are made.
- ☐ TV and VCR are plugged in and turned on.
- ☐ VCR/TV selector is set to "VCR."
- ☐ Clock is set to correct time.
- ☐ Record tab in place.

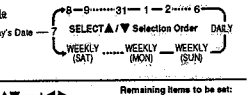




1 Press PROG* to display the program screen.
- If a program is already in memory, press ▲/▼ and ▶ to select an unused program number.

2 Press ▲/▼ and ▶ to select and set one of the following as the DATE:
- 1–31 =One time recording
- DAILY =Same time MON–FRI
- WEEKLY (SUN–SAT)=Same time once a week

Example

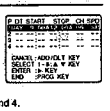


3 Press ▲/▼ and ◀/▶ to select and set each of the remaining items at right.

Remaining items to be set:
- START time
- STOP time
- CH(annel) number, or LINE for outside source recording
- Category (N/A (not applicable), SPORTS, MOVIE, COMEDY, MUSIC, DRAMA)
- Speed (SP, LP, SLP)

To Make Corrections
Repeatedly press ▶ to move the cursor to the right, or ◀ to move to the left to the incorrect entry and make the correction.

4 Press PROG to end the program.
- This screen appears for confirmation.



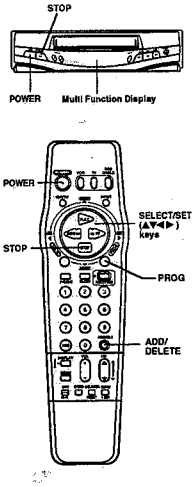
To Enter More Programs
Press ▲/▼ and ▶ to select and set a blank program number, and then repeat steps 3 and 4.

5 Press PROG to exit this mode.

6 Press POWER off to set the timer.
- When recording programs via a cable box, make sure the cable box is left ON and tuned to the desired channel.

Multi Function Display

NOTES
- A cassette with no record tab is ejected and "TIMER" flashes when the power is turned off to set the timer.
- If the start times of two programs overlap, the lower numbered program will have priority.
- If the start time for a timer recording comes up during a normal recording or One Touch Recording, the timer recording will not be performed.
- If there is a power interruption of more than one minute, the recording will not be performed or continue.



Cancel a Timer Recording:
(Recording is in progress)

Press POWER and then STOP within 10 seconds to cancel the timer recording.
- The TIMER indicator goes out in the Multi Function Display.

Replace Program Contents:
(Recording is not in progress)

1 Press PROG to display all currently set programs.

2 Press ▲/▼ and ▶ to select and set a program number.

3 Press ▲/▼ and ◀/▶ to select and set replacement timer information.

4 Press PROG twice to exit this mode.

Review or Clear Program Contents:
(Recording is not in progress)

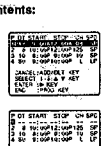
1 Press PROG to display all currently set programs.

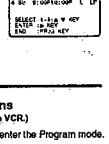
2 Press ▲/▼ to select "TIMER PROGRAM," and then press ▶ to display all currently set programs.

3 Press ▲/▼ to select a program number.

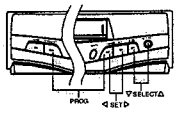
4 Press ADD/DLT if you want to clear the program.

5 Press PROG to exit this mode.





Timer Recording Using VCR Buttons
(Make sure a cassette tape is not inserted in the VCR.)



1 Hold down STOP/EJECT and press REW to enter the Program mode.

2 Press FF or REC/TIME repeatedly or hold down to make selections.

3 Press PLAY to set the item and move on.
- To make corrections, repeatedly press PLAY to move the cursor to the right, or REW to move to the left to the incorrect entry and make the correction.

4 Press STOP/EJECT and REW together to display program contents after all items have been entered.
- You cannot clear programs with the VCR buttons.

5 Hold down STOP/EJECT and press REW, (release REW first, and then release STOP/EJECT) to exit this mode.

6 Insert a cassette with record tab and press POWER off to set the timer.

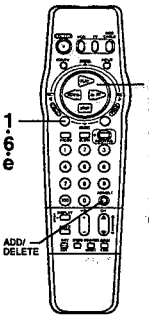
Special VCR Features

*Important: If the remote control POWER, ACTION, PROG, CH▲/▼, INDEX, or ADD/DLT button does not work when pressed, press the VCR button on the remote and try the button again.

Channel Caption

You can set channel names, i.e. ABC, CBS, so that when selected, the channel name and number appear on-screen for easy identification. You can go with preset names (up to 24), or manually create your own (up to 10).

Note: You will need a list of channels received in your area and the channel numbers you receive them on.



Preset Caption

1 Press ACTION* to display the menu.

2 Press ▲▼ to select "SET UP CHANNEL," and then press ▶ to display the "SET UP CHANNEL" screen.

3 Press ▲▼ to select "CHANNEL CAPTION," and then press ▶ to display the "CHANNEL CAPTION" screen.

4 Press ▲▼ to select "PRESET CAPTION," and then press ▶ to display the "PRESET CAPTION" screen.

- You can set up to twenty-four channel captions. If you want to set a station name other than these, go to the "Manual Caption" section below.

5 Press ▶ to move the shaded area to right side.
Then, press ▲▼ to change the memorized channel number to match the caption.
Next, press ◀ to set the memorized channel number.
Now, press ▲▼ to continue.
Repeat step 5 until the Caption List is complete.

To Make Corrections
Press ▲▼ and ▶ to select the memorized channel number. Then, press ▲▼ to change, or ADD/DLT to delete the channel number.

6 Press ACTION four times to exit this mode and return to the normal screen.

Manual Caption

a Follow steps 1-3 in the above section.

b In step 4, press ▲▼ to select "MANUAL CAPTION," and then press ▶ to display the "MANUAL CAPTION" screen.

c Press ▲▼ to select "CH NUMBER," and then press ▶ to move the shaded area to right.

- Channels already set in the "Preset Caption" section and channels deleted from Channel Memory are not displayed.
- You can set a total of ten channel captions with up to four characters each.

d Press ▲▼ to select, and then press ▶ to enter each character of the caption.

- Characters will change in the following order.

A→B→C·····→Z→BLANK→—→&→9←·····2←1←0←/←|←

Now, press ◀ repeatedly to move the cursor back to CH NUMBER. Repeat steps "c" and "d" as desired.

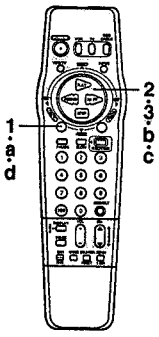
To Make Corrections, repeatedly press ▶ to move the cursor to the right, or ◀ to move to the left to the incorrect entry and make the correction.
To Clear the Caption, press ADD/DLT.

e Press ACTION four times to exit this mode and return to the normal screen.

☑ Check list before you begin.
☐ Clock is set to correct time.

Time Stamp Feature

For about the first 10 seconds of each recording, the VCR automatically writes the following program data on the tape: Date, Start time, Scheduled stop time (for Timer Rec. only), Channel No. and Category (for Timer Rec. only). Then, if playback is started at the starting point of the recording, this information will be displayed about 7 seconds after playback begins for a few seconds.



1 Press ACTION to display the menu.

2 Press ▲▼ to select "SET UP FEATURE," and then press ▶ to display the "SET UP FEATURE" screen.

3 Press ▶ to select "ON" or "OFF."

- When "OFF" is selected, the program data is written on the tape, but will not be displayed for the first 5 seconds of playback.

4 Press ACTION twice to exit.

<Time Stamp Example>

Normal/
One Touch Recording | Timer Recording | When Clock is not set...

- If the tape speed is changed immediately after recording begins, the display may be incorrect.

Blue Back ON/OFF Feature

You may choose whether or not you want the VCR to display a solid blue back screen when the broadcast signal is very weak.

a Press ACTION to display the menu.

b Press ▲▼ to select "SET UP VCR," and then press ▶ to display the "SET UP VCR" screen.

c Press ▲▼ to select "NOISY CH BLUE BACK," and then press ▶ to select "ON" or "OFF."

- When "ON" is selected, a solid blue screen appears whenever the signal is weak or nonexistent. When "OFF" is selected, the picture is displayed regardless of the signal condition.
- The picture can not always be seen clearly when "OFF" is selected.

d Press ACTION twice to exit.

NOTE
- When the VCR is connected to a Combination VCR which has a Blue Back feature, even if the VCR Blue Back is set to "OFF" on the VCR, the screen will go to blue back.

Special VCR Features (continued)

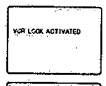
*Important: If the remote control POWER, ACTION, PROG, CH▲/▼, INDEX, or ADD/DLT button does not work when pressed, press the VCR button on the remote and try the button again.

☑ Check list before you begin.
☐ All connections are made.
☐ VCR is plugged in.
☐ TV is turned on and set to the VCR channel (CH 3 or 4).

VCR Lock Feature

When activated, this feature prohibits all operations except for timer recording and tape eject. This feature may be used to keep young children from operating the VCR.

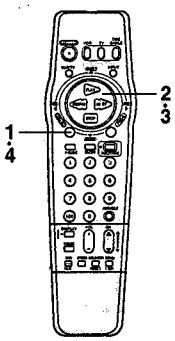
Hold down REC/TIME on the VCR without a cassette inserted for 7 seconds while in Stop mode.



REC/TIME

To Cancel the VCR Lock feature, with or without a cassette inserted, hold down REC/TIME on the VCR for 7 seconds again while in Stop mode.

- VCR Lock mode is cancelled automatically after about 24 hours as long as the clock is set.



Warning Beeper Feature

When you select BEEPER ON, a short warning will sound each time an invalid entry or incomplete operation is made.

1 Press ACTION* to display the menu.

2 Press ▲▼ to select "SET UP VCR," and then press ▶ to display the "SET UP VCR" screen.

3 Press ▲▼ to select "BEEPER," and then press ▶ to select "ON" or "OFF."

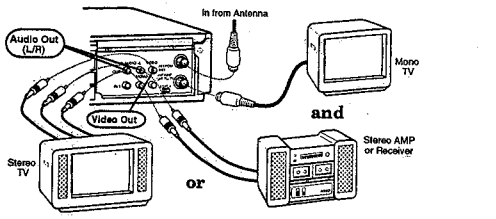
4 Press ACTION twice to exit this screen.

MTS Broadcast/ VHS Hi-Fi Stereo System

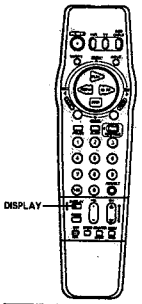
(For Models PV-8450/PV-8450-K/VHQ 860)

☑ Check list before you begin.
☐ The VCR is connected to a stereo TV, or a mono TV and an external stereo amp or receiver with speakers.
☐ The VCR and other components are plugged in and turned on.

Connections to Make



When recording, you may monitor in stereo, by connecting the VCR to either a stereo TV, or a mono sound TV with an external stereo amp and speakers.



Equipped with dbx® -TV Noise Reduction for true MTS reproduction. dbx® -TV Noise Reduction is required for good stereo separation and audio fidelity. dbx® is a registered trademark, and is licensed by dbx® Technology Licensing.

Receivable Broadcast Types

The following are possible audio broadcast types and on-screen displays. The signal being received is indicated with an "▶" mark while the selected audio mode is indicated with an arrow.

Press DISPLAY to display the broadcast signal currently being received.

MTS Stereo and SAP broadcast
Multi-channel Television Sound Stereo (main language) and Secondary Audio Program (sub language) broadcasts are being received simultaneously. Select STEREO or SAP audio mode.

MTS Stereo broadcast
Multi-channel Television Sound Stereo broadcast. Select STEREO audio mode.

- If a stereo broadcast is weak and the display flickers, you may want to select the MONO audio mode for better results.

SAP broadcast
Secondary Audio Program (sub language) broadcast. Select SAP audio mode for the sub language.

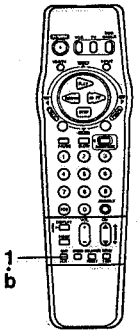
MONO broadcast
Normal monaural sound broadcast.

MTS Broadcast/ VHS Hi-Fi Stereo System (continued)

(For Models PV-8450/PV-8450-K/VHQ 860)

With the proper audio mode setting, your VCR can:
1) record and playback an MTS stereo broadcast (main language) in stereo Hi-Fi.
2) record and playback a monaural broadcast (main language) or Secondary Audio Program (sub language) on the Hi-Fi tracks for better quality monaural sound.
3) playback non Hi-Fi tapes in monaural.

- When recording, the selected broadcast sound is always recorded on the left and right Hi-Fi tracks as well as the normal monaural track. This means your tapes can be played back on Hi-Fi as well as non-Hi-Fi VCRs.



Audio Mode for Recording

1 Press SAP/HI-FI repeatedly (each press within 5 seconds) to select the desired audio mode (STEREO, SAP, or MONO).
- Please refer to the "Receivable Broadcast Types" section.

- The arrow indicates your selection.

2 Do a recording.
See the "Record On a Tape" section.

Audio Mode for Playback

a Playback the tape.
See the "Playback a Tape" section.

b Press SAP/HI-FI repeatedly (each press within 5 seconds) to select the desired audio mode (HIFI or NORMAL).
- Select "HIFI" to listen to your stereo recordings with stereo sound, or "NORMAL" for monaural sound.

- The arrow indicates your selection.

NOTES
- When purchasing or renting prerecorded tapes, remember that only those recorded in Hi-Fi stereo will play back with true stereo sound. Standard stereo tapes will play back with monaural sound.
- In order to listen to Hi-Fi stereo playback, the VCR AUDIO (L/R) jacks must be connected to a stereo TV or an external stereo amp and speakers.
- When adjusting the tracking during playback, the Hi-Fi audio sound may revert to normal audio sound. This is normal.
- There may be a difference in audio level between Hi-Fi and normal audio playback.

Multi-Brand Control Feature

The Remote Control may be set up to control some of the functions on your TV or Cable Box.

TV Brand Code Numbers

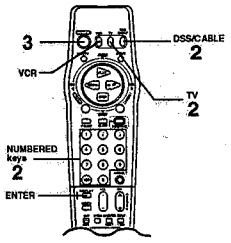
Panasonic	01, 02	Toshiba	09
Quasar	01, 02	Sanyo	10
RCA	03	Fisher	10
GE	03	JVC	11
Zenith	04	Hitachi	12
Magnavox	05	Mitsubishi	07, 13
Sylvania	05	Samsung	14
Sharp	06, 07	Gold Star	15, 16, 17
Sony	08		

DSS Brand Code Numbers

Toshiba	103
Hitachi/ Hughes	104
Magnavox/ Uniden 1	105
Magnavox/ Uniden 2	106
Sony	107
RCA	108
Panasonic	109

Cable Box Brand Code Numbers

Archer	01, 29, 44, 88, 91
Cableview	04, 30, 42, 44, 52, 63, 85, 88
Citizen	04, 30, 42, 44, 52, 63, 85, 88
Curtis	08, 09, 56, 61, 87, 90
Diamond	01, 29, 44, 88, 91
Drake	37, 67, 71
Eagle	13, 20, 22, 26, 40, 58, 62, 98
Eastern	28
GC Brand	04, 30, 42, 44, 52, 63, 85, 88
Gemini	04, 85
General Electric	57
General Instruments	01, 02, 03, 04, 34, 55, 83, 85, 91, 93, 95
Hamlin	14, 15, 28, 41, 97, 100, 102
Hitachi	31, 79
Jerrold	01, 02, 03, 04, 34, 55, 83, 85, 91, 93, 95
Macom	31, 79
Magnavox	25, 26
Matsushita	16, 17, 101
Movietime	29, 32, 38, 39, 40, 42, 44, 88
NSC	32, 38, 40
Oak	10, 11, 46, 99
Panasonic	16, 17, 101
Philips	13, 20, 23, 24, 96
Pioneer	05, 06, 78
Pulsar	04, 30, 42, 44, 52, 63, 85, 88
Radio Shack	44
RCA	16, 17, 101
Realistic	44, 51, 88
Regal	14, 41
Regency	28
Rembrant	29, 32, 39, 42, 44, 88
Salora	68, 72
Samsung	32, 40, 42, 78, 94
Scientific Atlanta	08, 09, 56, 61, 87, 90
Sheritech	27
SL Marx	32, 40, 42, 78, 94
Spucer	16, 17, 101
Stargate	04, 30, 32, 40, 42, 44, 52, 63, 78, 85, 88, 94
Sylvania	19
Teknika	74
Telecaption	77, 92
Teleview	32, 40, 42, 78, 94
Texscan	18, 19
Tocom	01, 33, 34, 42, 48, 49, 91
Toshiba	36
Uniden Satellite	65, 69
Unika	01, 29, 44, 88, 91
Universal	42, 43, 44, 52, 63, 88
Viewstar	13, 20, 22, 26, 40, 58, 62, 98
Videoway	07, 23, 50
Vid Tech	64
Vidtex	64
Zenith	07, 23, 50



Multi-Brand Control Setup

1 Find your TV or Cable Box or DSS Box Brand Code Number from one of the charts on this page.

2 Hold down TV or DSS/CABLE. Use the NUMBERED keys to enter your TV or Cable Box Brand code number.
- For code numbers 100 or greater, first press the 100 key. Then, enter the remaining digit. E.g. for 102, press 100, then press 2.

3 To confirm that the correct code was entered, **press POWER** to turn your TV or Cable Box or DSS Box On/Off.

4 Try each of the functions listed below left.
- Due to changes in infra-red commands used by some manufacturers, more than one code is listed for some TV or Cable Box brands are listed more than once. If your TV or Cable Box does not respond to the first code, please try entering the next code.

NOTES
- Please repeat the TV/Cable Box Set Up procedure when you replace the remote's batteries.
- **The remote control is designed to control the brands listed. However, it will not operate all TVs, Cable Boxes or DSS Boxes made by these manufacturers.** If you get no results, your particular product brand cannot be controlled by this remote control.

Multi-Brand Control Feature (continued)

Using the Multi-Brand Control

Once the remote control has been properly set up, you can select VCR, TV, or DSS/CABLE mode depending on which functions you wish to control.

Press VCR or TV or DSS/CABLE on the remote control to select the desired mode.
(See below for the controllable functions of each mode.)

NOTE:
In TV or DSS/CABLE mode, it may be necessary to press ENTER after pressing NUMBERED keys for channel selection.

VCR Mode

In VCR mode, the following buttons are available.

VCR
All function buttons.

TV
VOL UP/DOWN

TV Mode

In TV mode, the following buttons are available.

TV
POWER, INPUT, NUMBERED keys, ENTER, CH UP/DOWN, VOL UP/DOWN

VCR
VCR/TV, PLAY, STOP, FF, REW, PAUSE, SLOW, REC, SAP/HI-FI, SPEED, COUNTER RESET, ZERO/1 MIN.

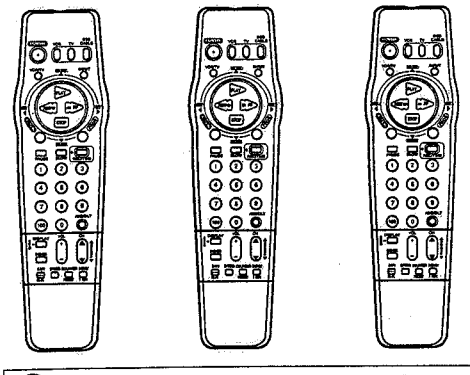
DSS/CABLE Mode

In DSS/CABLE mode, the following buttons are available.

DSS/CABLE
POWER, NUMBERED keys, ENTER, CH UP/DOWN

TV
VOL UP/DOWN

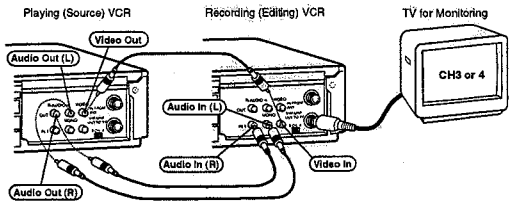
VCR
VCR/TV, PLAY, STOP, FF, REW, PAUSE, SLOW, REC, SAP/HI-FI, SPEED, COUNTER RESET, ZERO/1 MIN.



NOTES
- Some TV, Cable Box and DSS Box brands require you to turn on the power manually.
- Not all functions listed may be controlled by this remote control.

Copying Your Tapes (Dubbing)

Connections you'll need to make.
- When connecting to a normal VCR, use the L Audio In jack for proper sound reproduction.



1 Insert a pre-recorded tape into the Playing (Source) VCR.

2 Insert a blank tape with record tab into the Recording (Editing) VCR.

3 Select "LINE" input mode on the Recording (Editing) VCR. (See "Selecting the Input Mode" at right.)

4 Press PLAY on the Playing VCR.
Press PAUSE at the desired starting point.

5 Press REC on the Recording VCR, and then **press PAUSE** immediately thereafter.

6 Press PAUSE on both VCRs at the same time, to begin copying.

To Edit Out Unwanted Parts
Press PAUSE on the recording VCR while copying is in progress. Press PAUSE again to resume copying.

7 Press STOP on both VCRs to stop copying.

To Monitor Dubbing on Your TV

1 Turn your TV on and tune to the Recording VCR channel (CH3 or CH4).

2 Set the VCR/TV Selector on the Recording VCR to "VCR."

Selecting the Input Mode

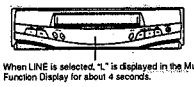
Press INPUT.
The display will change in the order below.

Channel Number → LINE

or

Press CH ▲/▼.
The display will change in the order below.

1 → 2 → 3 → (CABLE) 125 or 69 → (TV) LINE



- When LINE is selected, "L" is displayed in the Multi Function Display for about 4 seconds.

Caution:
Unauthorized exchanging and/or copying of copyrighted recordings may be copyright infringement.

SERVICE NOTES

SIMPLIFIED FAULT FINDING DATA

(With F.I.P. Model)

Simplified Self-Diagnostic System facilitates finding the cause of the fault. A 4 digit fault code will be displayed in F.I.P. The Simplified Fault finding data is memorized for approximately 12 hours. This data is cleared after it is displayed and then, the POWER button is pressed back on.

1. With power turned off, press PLAY button on VCR (for over 3 seconds if VCR is not in shut off condition).

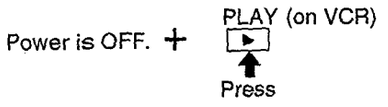


Fig. 1-1

2. Fault code (4 digit number) will be displayed in F.I.P. as shown.

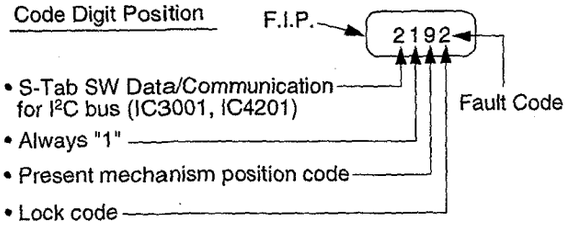


Fig. 1-2

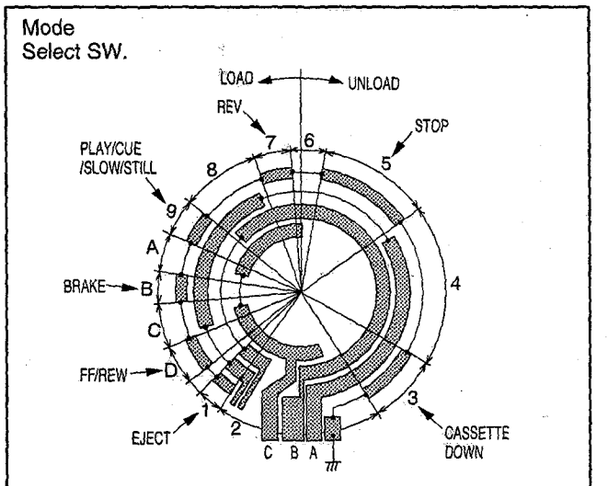
Explanation of Codes	Code No.			
S-Tab SW. Data/Communication check for I²C bus (IC3001, IC 4201) (Refer to Fig. 1-4.)	1 ~ 8			
Not applicable		1		
Present Mechanism Position Code Mechanism Position is indicated. (Refer to Fig. 1-5.)			1 2 3 4 5 6 7 8 9 A B C D	
Lock Code (See Note 1.) • VCR is not in shut-off condition. • Reel lock. • Cylinder lock. • Exceeds loading/unloading time. (Mechanism Lock) • Exceeds Cassette loading/unloading time. (Cassette Lock) Tape Unloading (direction) Tape Loading (direction)			1 2	0 1 2 3 4 4

Fig. 1-3

S-Tab SW. condition	Communication check for I²C bus (IC6001 ↔ IC3001)	Communication check for I²C bus (IC6001 ↔ IC4201)	Code No.
ON	OK	OK	1
	OK	NG	2
	NG	OK	3
	NG	NG	4
OFF	OK	OK	5
	OK	NG	6
	NG	OK	7
	NG	NG	8

Note: For Normal Audio models, only even code No.s will be displayed in F.I.P. because IC4201 (Hi-Fi Audio IC) is not used.

Fig. 1-4



Mechanism position	EJECT		CASSETTE DOWN		STOP/ STBY		REV		PLAY/CUE/ SLOW/STILL		BRAKE		FF/REW
position code	1	2	3	4	5	6	7	8	9	A	B	C	D

Fig. 1-5

3. While pressing down PLAY button on VCR with power turned off, press any operation button on either VCR, or remote to detect that a key has been pressed. The 1st digit changes to "0" only when key is detected.

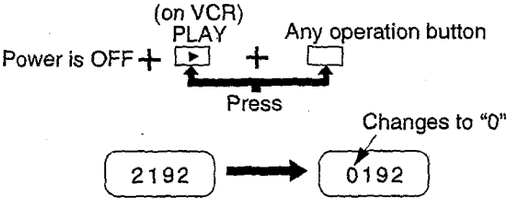


Fig. 1-6

Note:

1. When 1 to 4 listed in Lock code occurs, the VCR goes into VCR shut-off condition. VCR stops and all VCR function buttons except for power become non-operational.

(Without F.I.P. Model)

Simplified Self-Diagnostic System facilitates finding the ca

Simplified Self-Diagnostic System facilitates finding the cause of the fault. Rec LED and/or Timer LED will lights up or flash.
The Simplified Fault finding data is memorized for approximately 12 hours. This data is cleared after it is displayed with the PLAY button and then the Power button is pressed back on.

1. With power turned off, press PLAY button on VCR (for over 3 seconds if VCR is not in shut off condition).

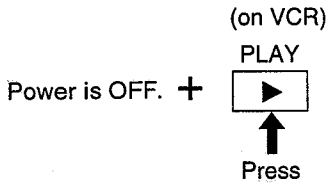


Fig. 1-7

2. Fault indication with the LED will be displayed .

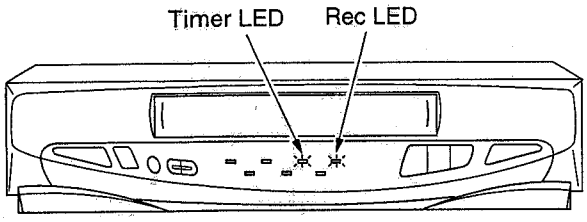


Fig. 1-8

Information	LED
Takeup Reel Lock	Timer LED lights up
Cylinder Lock	Rec LED lights up
Exceeds Loading/Unloading Time	Timer and Rec LED lights up
Exceeds Cassette Loading/Unloading Time	Timer and Rec LED flash

Fig. 1-9

SERVICE POSITION

The Basic Service Position does not require the use of Extension Cables. However, for more extensive servicing, Extension Cables should be used.

1. Basic Service Position

Service Position	Purpose
Service Position (1)	Mechanism check Mechanical adjustment Electrical adjustment
Service Position (2)	Main C.B.A. check

Service Position (1)

Remove Top Cover and Front Panel Ass'y.

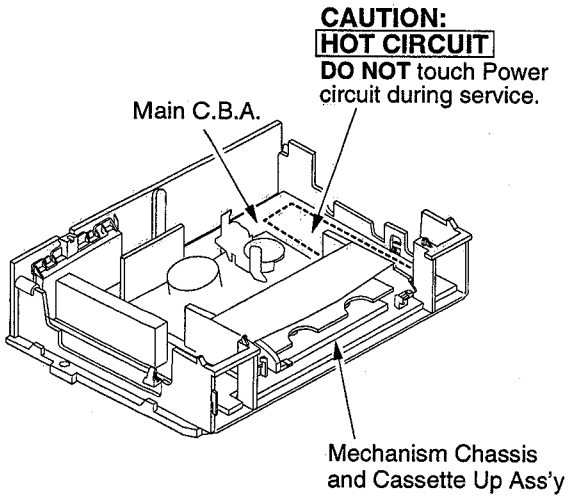


Fig. 2-1

Service Position (2)

Remove Top Cover and Front Panel Ass'y. Then, remove VCR Chassis Unit out of Frame.
Place VCR Chassis Unit as shown.

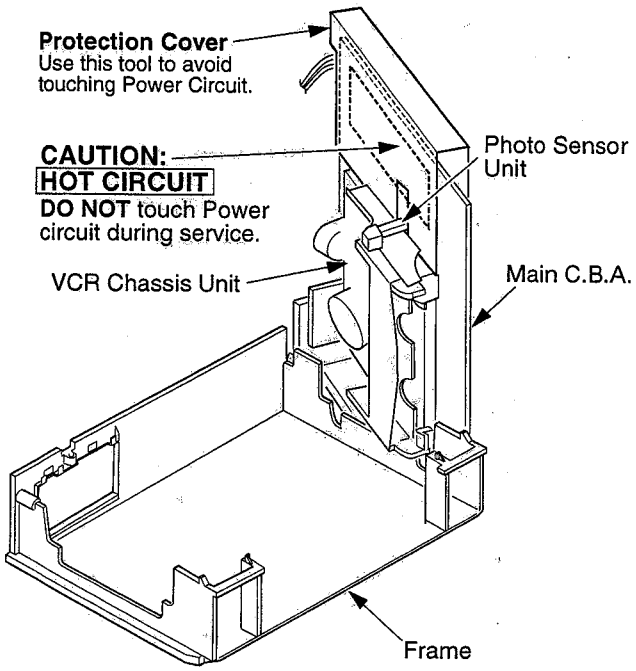


Fig. 2-2

CAUTION:

HOT CIRCUIT (Primary circuit) exists on the Main C.B.A. Use extreme care to prevent accidental shock when servicing.

Note:

When disassembling/assembling, refer to "Disassembly/Assembly Procedures of Cabinet" section.

To avoid touching power Circuit,
following Tool (**Protection Cover**) is recommended.

How to make the Protection Cover:

1. Cut a Cassette Tape Case as shown.

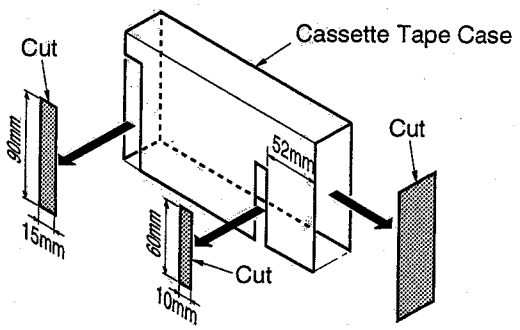


Fig. 2-3

2. Cover the Power Circuit portion on Main C.B.A. with it.

Note:

The Protection Cover is not supplied.

2. Service Position with Extension Cable Kit

Service Position (1)

In Service Position (1), mechanism check from the Bottom Side of Mechanism Chassis and Capstan Stator Unit (Capstan Motor Drive, Loading Motor Drive Circuit) check with power on condition can be performed.

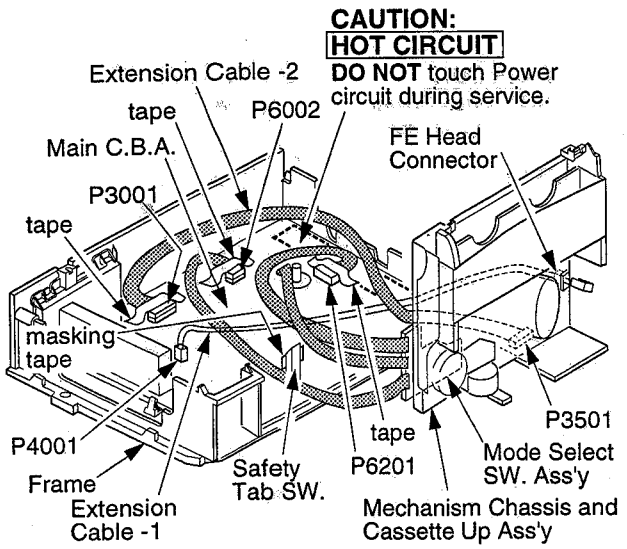


Fig. 2-4

Service Position (2)

In Service Position (2), Main C.B.A. check with power on condition can be performed.

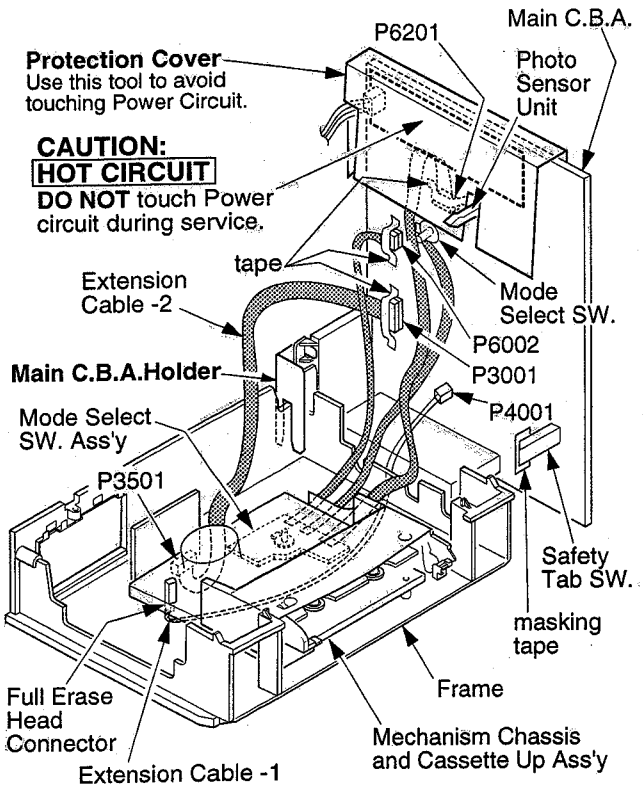


Fig. 2-5

Extension Cable Kit (VUZS0002)

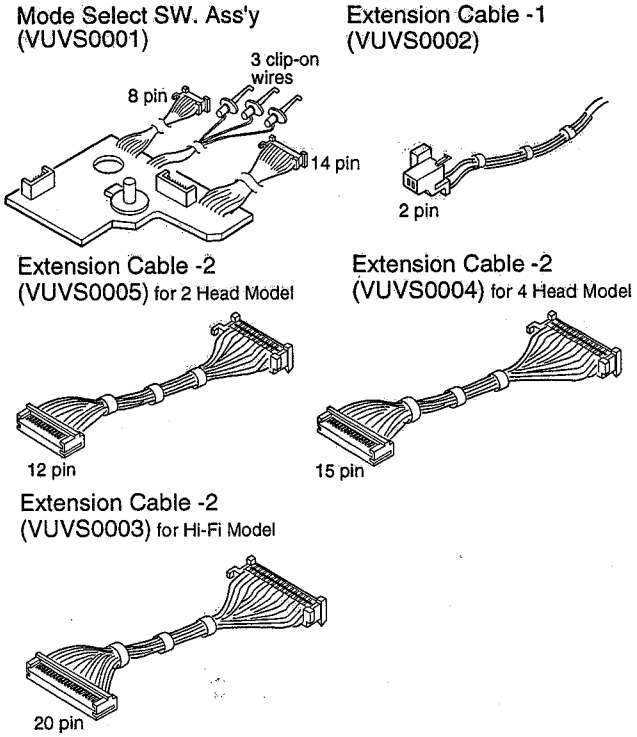


Fig. 2-6

Note:
3 types of Extension Cable -2 are included in this kit. Since there is a difference in the number of P3501 Head Amp C.B.A. pins between 2 Head, 4 Head, and Hi-Fi models, be sure to use the proper cable.

How to place the unit in the Service Position (1)

1. Remove Top Cover, Front Panel Ass'y, Mechanism Chassis, and Cassette Up Ass'y.
2. Connect the Extension Cables as follows:

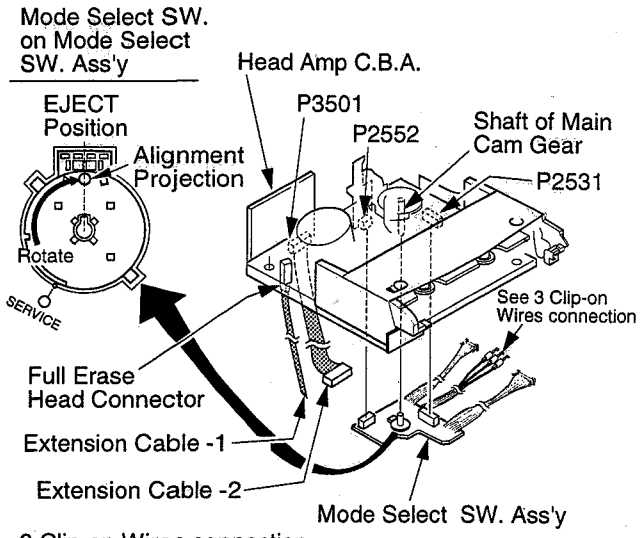
- Extension Cable -1: Full Erase Head Connector on the Mechanism Chassis Unit ~ P4001 on the Main C.B.A.
  Note: No change in performance if pins are reversed.
- Extension Cable -2: P3501 on the Head Amp C.B.A. ~ P3001 on the Main C.B.A.
- Mode Select SW. Ass'y: a) 3 Clip-on Wires ~ Test Points on the Main C.B.A.

Red Wire	~ TP6017
Orange Wire	~ TP6018
Yellow Wire	~ TP6019

  b) 8 Pin Connector ~ P6002 on the Main C.B.A.

  c) 14 Pin Connector ~ P6201 on the Main C.B.A.

  d) Set Mode Select SW. on the Mode Select SW. Ass'y to EJECT position and install onto Mechanism Chassis



3 Clip-on Wires connection

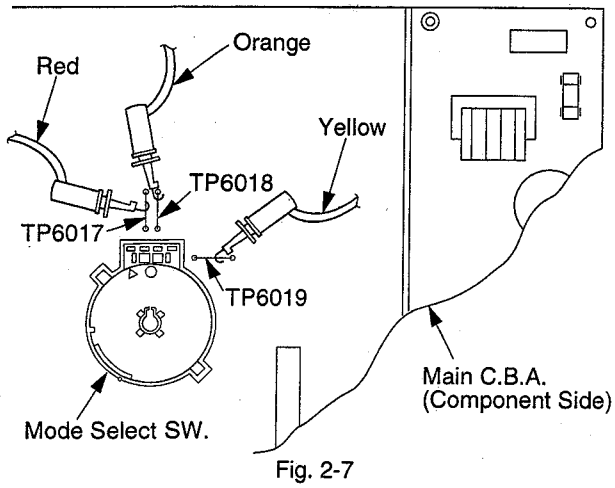


Fig. 2-7

3. Place Mechanism Chassis and Cassette Up Ass'y as shown.
4. Secure the Extension Cables with tape as shown. When recording, cover the Safety Tab SW. with masking tape to turn this SW. on.

   Note:
   To avoid damaging the connectors on Main C.B.A., it is necessary to secure connectors with tape as shown.
5. Set Mode Select SW. on the Main C.B.A. to Service Position.
6. Plug the AC plug into an AC outlet.
7. Insert a cassette.
   The power comes on, the tape is fully loaded, and the unit goes into the STOP Mode.
8. Place a jumper between TP6001 and GND to place the unit in Service Mode.
9. Check and/or repair the unit.
10. Press the STOP/EJECT button to eject the cassette.

    Note:
    When inserting a cassette again, remove the jumper between TP6001 and GND and insert the cassette. Then, reconnect the jumper.
11. After servicing, remove the jumper between TP6001 and GND to release the unit from Service Mode.

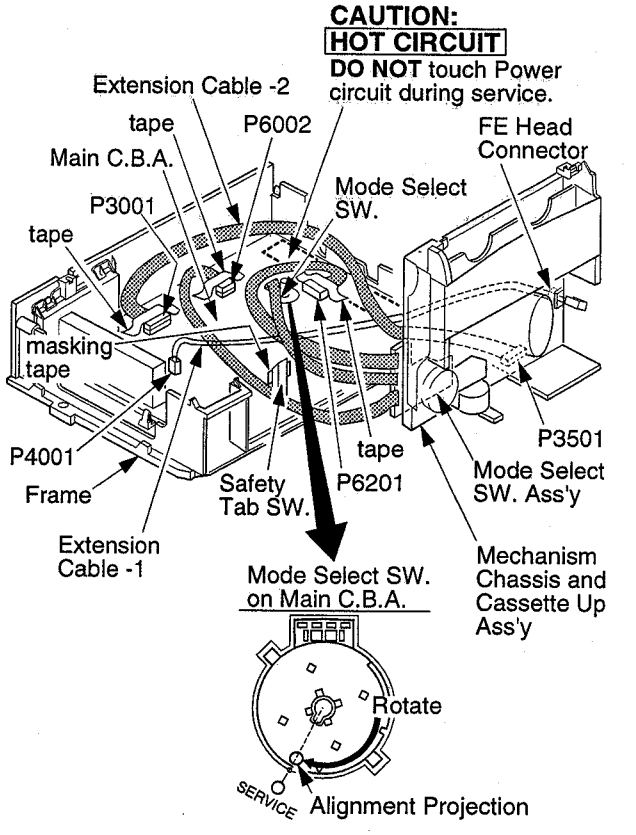


Fig. 2-8

CAUTION:
HOT CIRCUIT (Primary circuit) exists on the Main C.B.A. Use extreme care to prevent accidental shock when servicing.

Note:
When disassembling/assembling, refer to "Disassembly/Assembly Procedures of Cabinet" section.

How to place the unit in the Service Position (2)

1. Perform Step 1 through Step 4 in "How to Place the unit in the Service Position (1)."
2. Place Main C.B.A. using Main C.B.A. Holder as shown.

Note:
The Main C.B.A. Holder can be used to stabilize Main C.B.A. during Service.

Main C.B.A. Holder (VSCS2534)

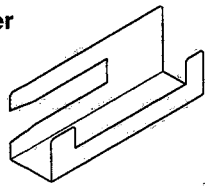


Fig. 2-9

3. Cover the Power Circuit portion on Main C.B.A. with Protection Cover as shown.

Note:
The Protection Cover is not supplied.

4. Perform Step 5 through Step 11 in "How to Place the unit in the Service Position (1)."

CAUTION:
HOT CIRCUIT (Primary circuit) exists on the Main C.B.A. Use extreme care to prevent accidental shock when servicing.

Note:
When disassembling/assembling, refer to "Disassembly/ Assembly Procedures of Cabinet" section.

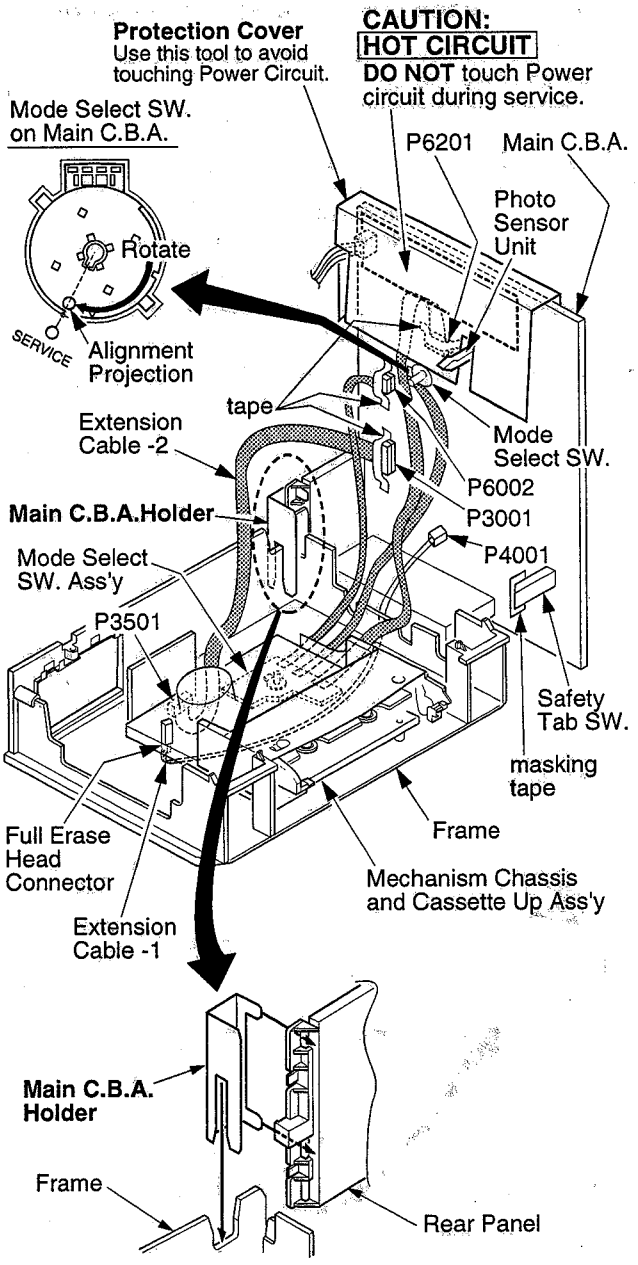


Fig. 2-10

HOT CIRCUIT

Primary circuit exists on the Main C.B.A.
This circuit is identified as "**HOT**" on the C.B.A. and in the Service Manual. Use extreme care to prevent accidental shock when servicing.

SERVICE MODE

In order to inhibit detection of the Supply & Takeup Photo Transistors, Reel Sensor, and Cylinder Lock, press VCR/TV button and CH down button together on VCR for over 5 seconds in power off condition.

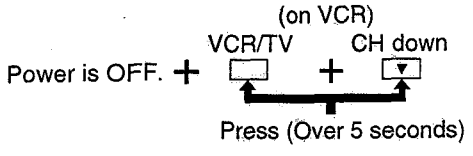


Fig. 3

The power comes on and the unit goes into service mode.

In this mode, Mechanism movement can be confirmed. When removing Cassette Up Ass'y, it can be confirmed without a cassette.

To release from this mode, press POWER button off or disconnect AC Plug.

(Alternative method) Ground the TP6001.

INSTALLATION OF FRONT PANEL ASS'Y CAUTION

1. Swing the Cassette Door -Lid all the way open until the Cassette Door tab clears the Opener Lever.
2. Make sure that all locking tabs are aligned properly. Then, press the Front Panel straight in.

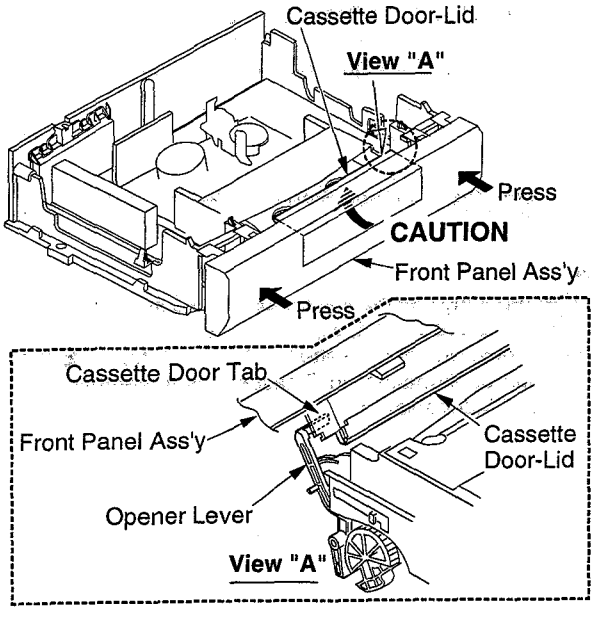


Fig. 4

METHOD FOR LOADING/ UNLOADING OF MECHANISM

(Manual Method)

Turn the Main Cam Gear counterclockwise (for loading) or clockwise (for unloading) using needlenose pliers etc.

Note:
Do not use this method if Mechanism is jammed or locked.

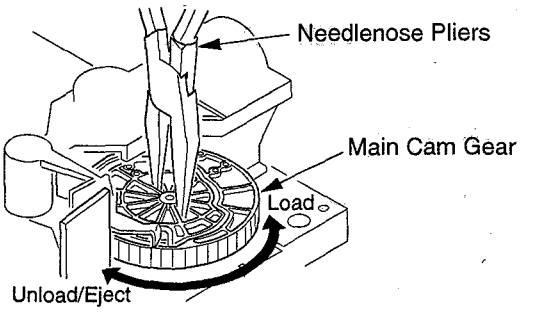


Fig. 5-1

(Electrical Method)

Remove the solder as shown and apply +10.0 VDC Power Supply (DC + to Portion "a," DC - to Portion "c").

Note:
Be careful not to let the DC Power Supply Unit GND contact the chassis GND. This may damage the Loading Motor Drive IC (IC 2501).
Be sure to apply DC + to Portion "a" of Motor P.C.B.
If DC + is applied to Portion "b", the Loading Motor Drive IC (IC2501) may be damaged.

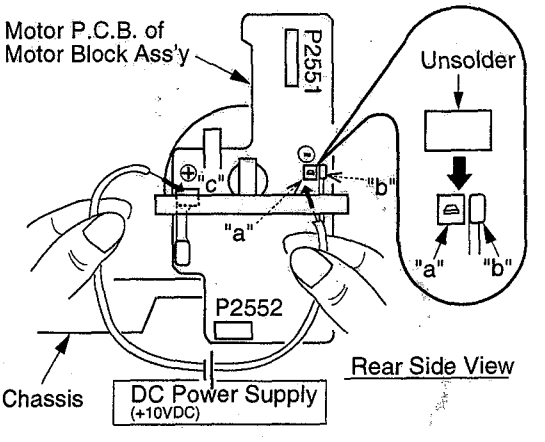


Fig. 5-2

Note:
Do not forget to solder Portions "a" and "b" after loading/ unloading operation is completed.

When loading without a cassette, press Portion "a" on both sides of the Holder Unit of Cassette Up Ass'y so that the Levers clear the Tabs and Holes.

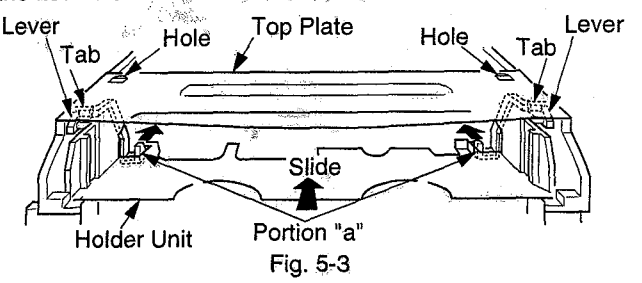


Fig. 5-3

HOW TO REMOVE A JAMMED TAPE

Manual Method

When a tape jam is encountered, check the tape loading condition and use the following procedure to remove a tape jam.

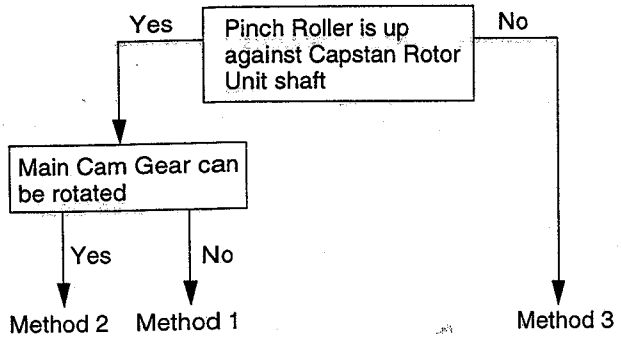


Fig. 6-1

Method -1:

1. While releasing 2 Locking Tabs (A) of Opener Piece, pull the Opener Piece up as far as you can.
2. Move the pin of Pinch Arm Unit out of the groove of the Main Cam Gear so that the Pinch Roller is separated from the shaft of the Capstan Rotor Unit.

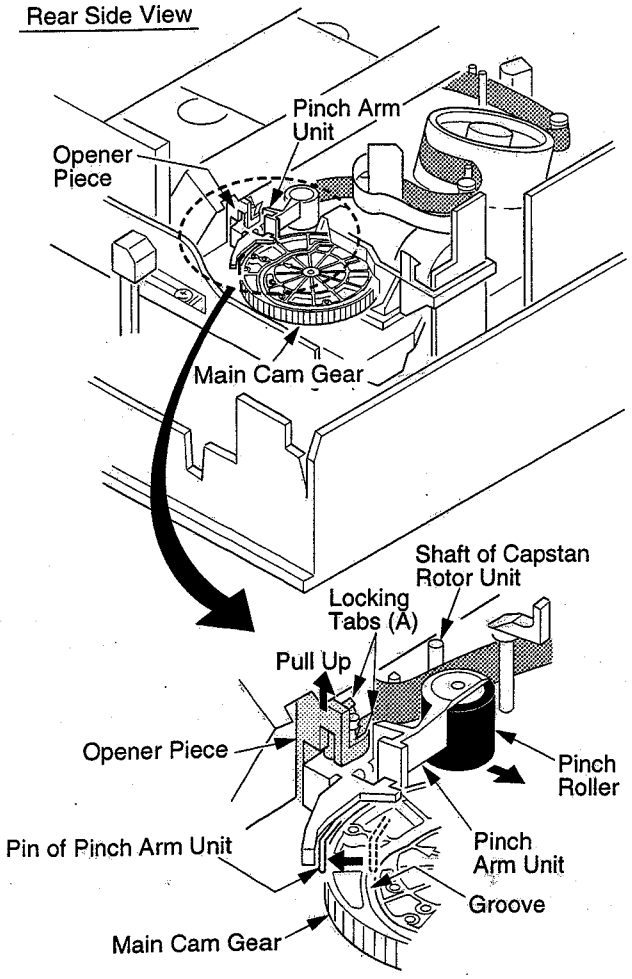


Fig. 6-2

3. Remove the tape from the tape path.
4. Rewind the tape into the cassette by rotating the Center Clutch Unit counterclockwise.
5. Unhook Spring (A) of the Drive Rack Unit.
6. Remove Screw (A).
7. Lift the Drive Rack Unit up so that the slot clears the guide tab. While pulling the Drive Rack Unit out far enough so that it clears the Drive Rack Arm, slide the Drive Rack Unit as indicated by the arrow to remove the cassette tape from the Cassette Up Ass'y.
8. Check the cause of mechanical trouble and repair.

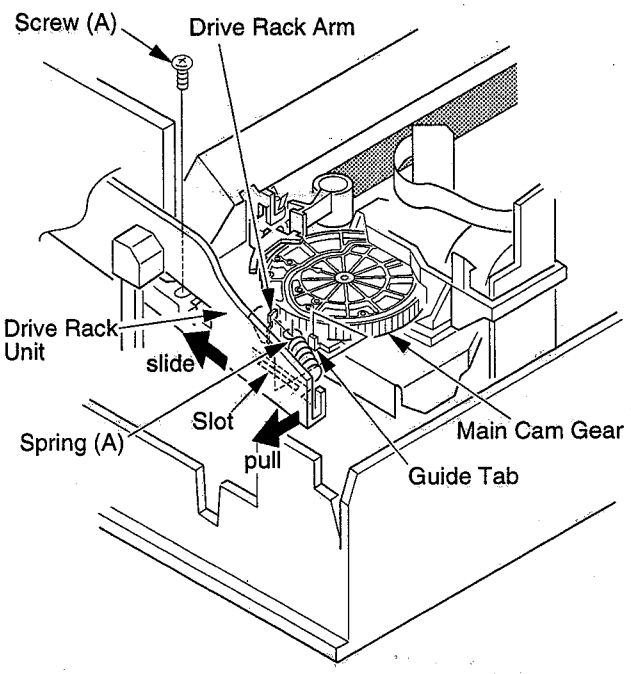


Fig. 6-3

Method -2:

1. Rotate Main Cam Gear clockwise with needlenose pliers, etc. so that the Pinch Roller is separated from the shaft of the Capstan Rotor Unit.
2. Perform Step 3 through Step 8 of Method -1.

Method -3:

1. Perform Step 3 through Step 8 of Method -1.

Note:

After repairing mechanical trouble, make sure that all gear alignments are correct, especially the Wiper Arm Unit and Drive Rack Unit of Cassette Up Ass'y. (Refer to "**EJECT** Position confirmation" in Disassembly/Assembly Procedures of Mechanism.)

Electrical Method

Electrical method can only be performed when the mechanism is moved by rotating the Main Cam Gear.

CAUTION:

If loading does not start in approx. 2 seconds after DC Power Supply is applied, DO NOT continue to apply DC Power Supply. Instead, perform "Manual Method."

Method -1:

1. Remove the solder as shown and apply +10.0 VDC Power Supply (DC + to Portion "a," DC - to Portion "c").
2. When the Loading Posts reach the fully unloaded position, remove the Power Supply.

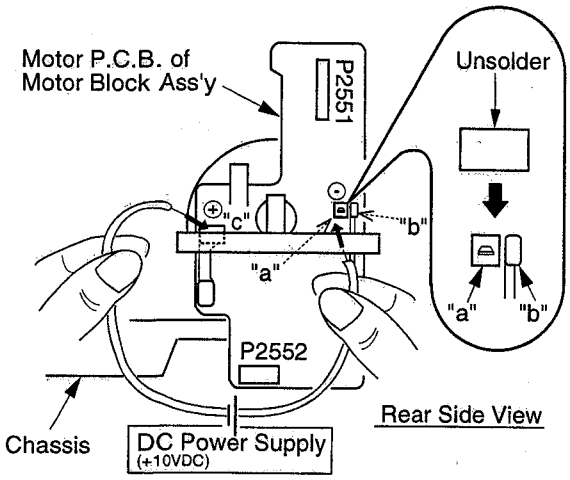


Fig. 7-1

Note:

Be careful not to let the DC Power Supply Unit GND contact the chassis GND. This may damage the Loading Motor Drive IC (IC 2501).
Be sure to apply DC + to Portion "a" of Motor P.C.B.
If DC + is applied to Portion "b", the Loading Motor Drive IC (IC2501) may be damaged.

3. Rewind the tape into the cassette by turning the Center Clutch Unit counterclockwise.
4. Eject the cassette by applying +10.0VDC Power Supply again.
5. After completing the removal procedure, solder Portion "a" and Portion "b."

Method -2:

1. Locate the Jumper (J6004) on the System Control Section of the Main C.B.A. and cut it near the center.

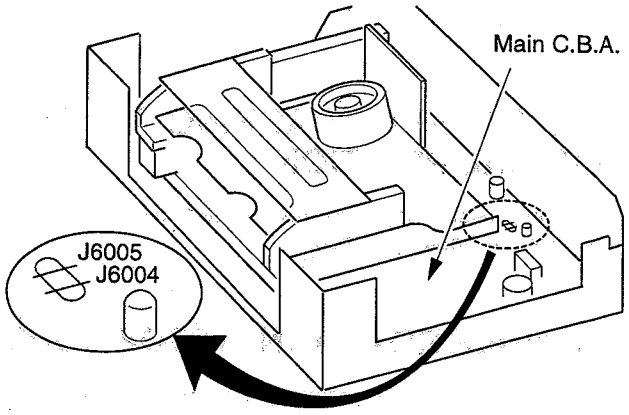


Fig. 7-2

2. Apply +10.0VDC Power Supply to the jumpers. When the Loading Posts reach the fully unloaded position, remove the Power Supply.

Note:

Be careful not to let the DC Power Supply Unit GND contact the chassis GND. This may damage the Loading Motor Drive IC (IC 2501).
Be sure to apply DC + to Portion "a" of J6004.
If DC + is applied to Portion "b" of J6004, the Loading Motor Drive IC (IC2501) may be damaged.

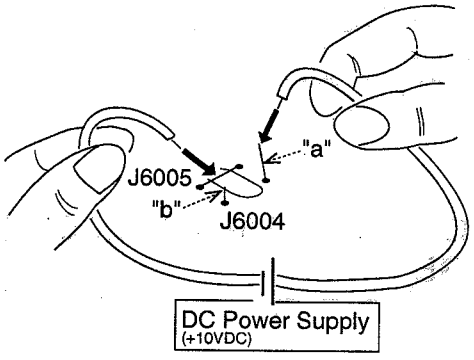


Fig. 7-3

3. Rewind the tape into the cassette by turning the Center Clutch Unit counterclockwise.
4. Eject the cassette by applying +10.0VDC Power Supply again.
5. After completing the removal procedure, resolder Jumper (J6004).

DEFEATING THE AUTO TRACKING

To defeat the Auto Tracking Function, place the instrument in the STOP mode and place a jumper between TP6003 and TP6009 on the Main C.B.A. The tracking will be placed in the neutral position.

HOW TO SET TRACKING TO THE NEUTRAL POSITION

Ejecting the cassette tape and then reinserting it will reset the tracking to the Neutral position.

CYLINDER ROTATION IN STOP MODE

The cylinder will continue to rotate for approximately 5 minutes after the STOP button is pressed in Play mode etc. Eject the tape in order to stop the cylinder.

BLACK SCREWS ON THE CHASSIS

Black Screws are used on the Mechanism Chassis to identify screws that require adjustment.

HOW TO RESET ALL VCR MEMORY FUNCTIONS

To reset (clear) the select language, channel auto set and set clock functions to their initial power on condition (power on, **no** cassette inserted), hold down the PLAY and CH UP buttons on the unit together for more than 5 seconds.
Power will shut off.

HOW TO CONFIRM AUTO CLOCK SET FEATURE
(Model: A, B, C, E, F)

1. Connect an RF cable from the output of one unit to the input of the test unit.
2. Select corresponding RF channels.
3. Playback a recording of P.B.S. channel including clock set data and confirm this feature.

VARIABLE VOLTAGE ISOLATION TRANSFORMER

An Isolation Transformer should always be used during the servicing of VCR whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks. It will also protect VCR from being damaged by accidental shorting that may occur during servicing.
Also, when troubleshooting the above type of Power Supply Circuit, a variable isolation transformer is required in order to increase the input voltage slowly.

SPECIAL NOTE

All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this service manual.

REPLACEMENT PROCEDURE FOR LEADLESS (CHIP) COMPONENTS

The following procedures are recommended for the replacement of the leadless components used in this unit.

1. Preparation for replacement
   a. Soldering Iron
      Use a pencil-type soldering iron that uses less than 30 watts.
   b. Solder
      Eutectic Solder (Tin 63%, Lead 37%) is recommended.
   c. Soldering time
      Do not apply heat for more than 4 seconds.
   d. Preheating
      Leadless capacitor must be preheated before installation. – (266°F ~ 302°F)
      (130°C ~150°C) for about two minutes.

   Note:
   a. Leadless components must not be reused after removal.
   b. Excessive mechanical stress and rubbing of the component electrode must be avoided.

2. Removing the leadless component
   Grasp the leadless component body with tweezers and alternately apply heat to both electrodes. When the solder on both electrodes is melted, remove the leadless component with a twisting motion.

   Note:
   a. Do not attempt to lift the component off the board until the component is completely disconnected from the board by a twisting action.
   b. Be careful not to break the copper foil on the printed circuit board.

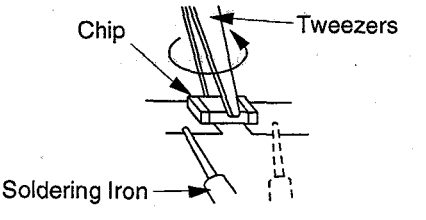


Fig. 8-1

3. Installing the leadless component
   a. Presolder the contact points on the circuit board.

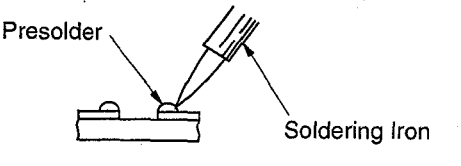


Fig. 8-2

b. Press the part downward with tweezers and solder both electrodes as shown below.

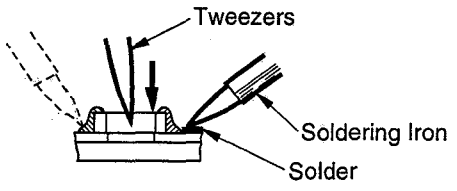


Fig. 8-3

Note:
Do not glue the replacement leadless component to the circuit board.

MODEL NO. IDENTIFICATION MARK

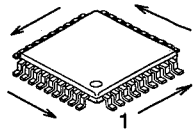
Use Marks shown in the chart below to distinguish the different models included in this Service Manual.

MODEL	MARK
PV-8400	A
PV-8400-K	B
PV-8401	C
VHQ840	D
PV-8450	E
PV-8450-K	F
VHQ860	G
Not Used	Z

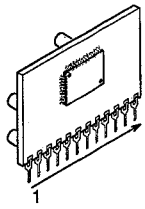
Note:
Refer to Item 3 of Schematic Diagram Notes of Schematic Diagram and Circuit Board Layout Notes, for mark "Z."

IC, TRANSISTOR AND CHIP PART INFORMATION

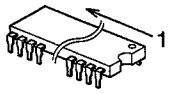
MAIN C.B.A.



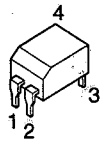
AN3476FBP, AN3962FB-V, MN101D01FPA, MN101D01FPB1, MN101D01GPA2



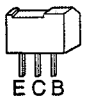
VCRS0215



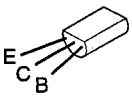
T47C216FF917



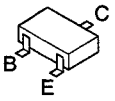
ON3131-S.KT, ON3131-R.KT, PS2501-1-X



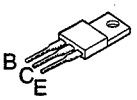
2SD2259



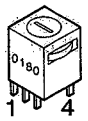
2SD2159



2SD601A, 2SB709A, 2SD1819A, 2SB1218ARS, 2SD235800A

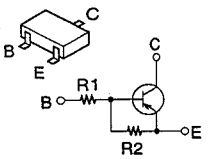


2SC5130LF608, 2SC4533LP.KT, 2SD2375

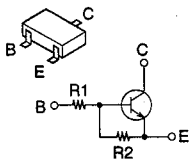


T4101, EIQ7QF018Q

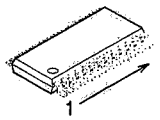
GENERAL C.B.A./ASS'Y PARTS



UN5115 (R1=10K, R2=OPEN), UN511L (R1=4.7K, R2=4.7K)



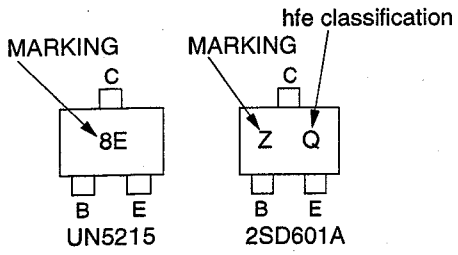
UN5215 (R1=10K, R2=OPEN), UN5211 (R1=10K, R2=10K)



MN3885S, AN3361SB, AN3328S, AN3845SC, AN3809K

HOW TO READ THE IDENTIFICATION MARK OF CHIP COMPONENTS.

MARKING	PART NO.	MARKING	PART NO.
B	2SB709A	6E	UN5115
B	2SB1218ARS	6Q	UN511L
Z	2SD601A	8A	UN5211
Z	2SD1819A	8E	UN5215
1B	MA111		



HOW TO READ THE VALUES OF THE CYLINDRICAL TYPE CHIP COMPONENTS.

The widest color band must be read first for value.

(a) RESISTOR

There are two types (ERD10LLJ... and ERD10TLJ...) of chip parts.

1) ERD10LLJ : Refer to above type.
2) ERD10TLJ : The narrow color band must be read first for value.

If this part is included in the parts list, be sure that the color band is read properly when servicing.

(b) CAPACITOR

Because of the width of the color bands, the reading direction cannot be specified. However, the color band can be read on either side. Be sure to confirm the value using the schematic diagram.

CAUTION :

Once chip parts are removed, they must not be reused. Always use a new part when installing a chip part.

DISASSEMBLY/ASSEMBLY PROCEDURES

DISASSEMBLY/ASSEMBLY PROCEDURES OF CABINET

Disassembly Flowchart

Perform all disassembly procedures in the order described in the "Disassembly Flowchart" shown below. When reassembling, use the reverse procedure.

CAUTION:
Disconnect AC plug before disassembly.

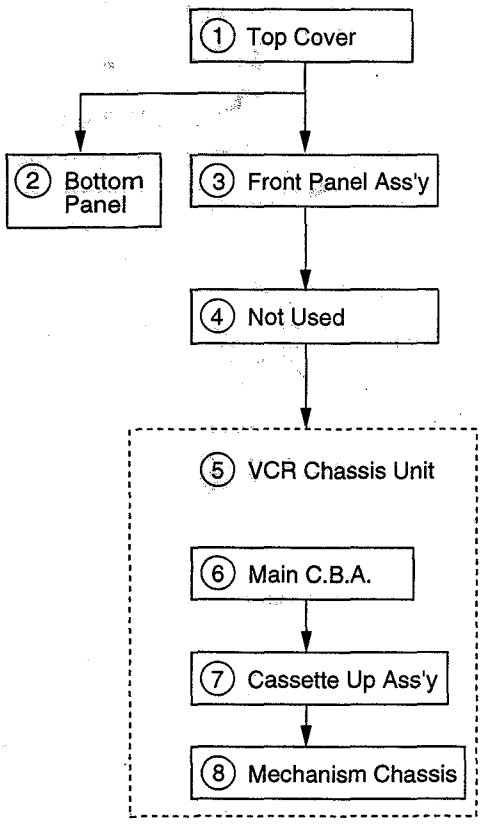


Fig. D1

Top Cover

Disassembly Procedure

1. Remove 2 Screws (A) and 2 Screws (B).
2. Lift up on the rear portion of the Top Cover and remove.

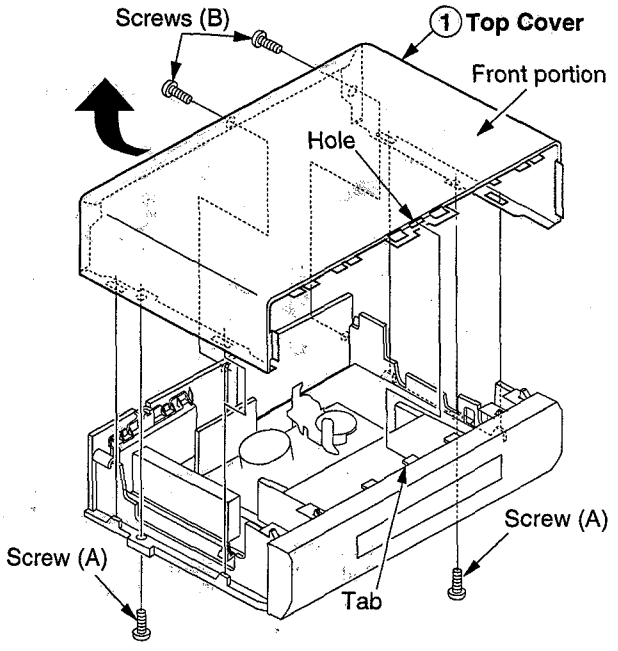


Fig. D2

Reassembly Notes

1. Install the Top Cover front portion at a downward angle so that the tab on the Front Panel Ass'y fits into the hole in the Top Cover.
   Then, lower the rear portion into place and tighten 2 Screws (A) and 2 Screws (B).

Bottom Panel

Disassembly Procedure

1. Remove 3 Screws with Washers (A), (B), and Screw (C).
2. While pushing 2 Locking Tabs (A) to release, slide the Bottom Panel and remove.

Bottom View

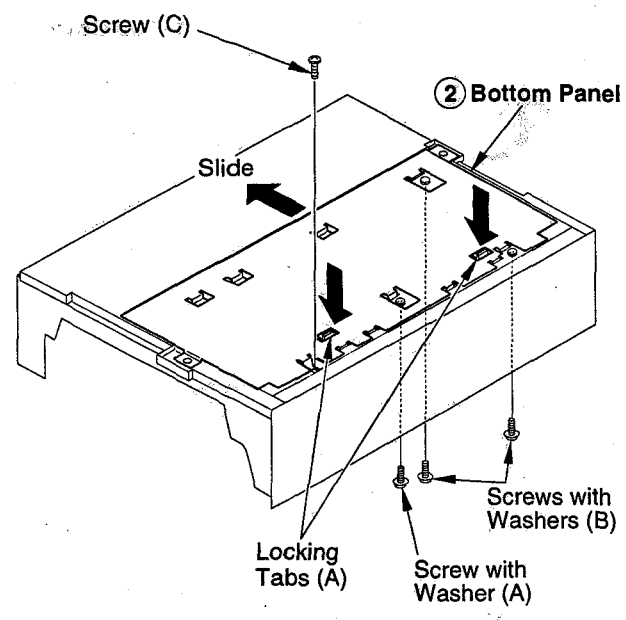


Fig. D3

Front Panel Ass'y

Disassembly Procedure

1. Release 2 Locking Tabs (B) on the top left.
2. Release 2 Locking Tabs (C) on the top right.
3. Release 3 Locking Tabs (D) on the bottom side. Then, remove the Front Panel Ass'y.

Note:
Work carefully so as not to break the Tabs.

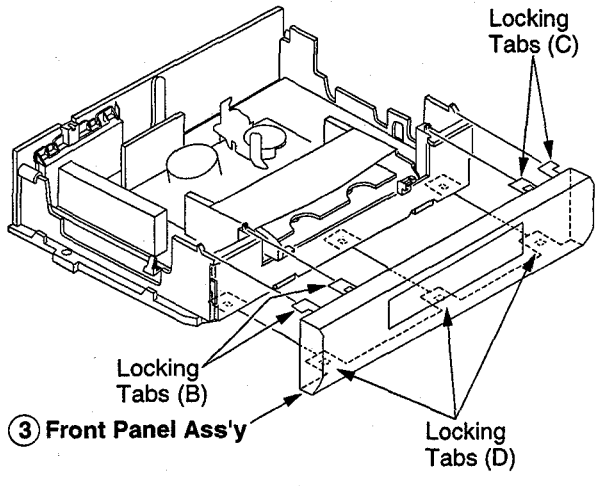


Fig. D4-1

Reassembly Notes

Installation of Front Panel Ass'y

CAUTION

1) When installing the Front Panel Ass'y, swing the Cassette Door-Lid all the way open until the Cassette Door tab clears the Opener Lever.
2) Make sure that all locking tabs are aligned properly. Then, press the Front Panel straight in.

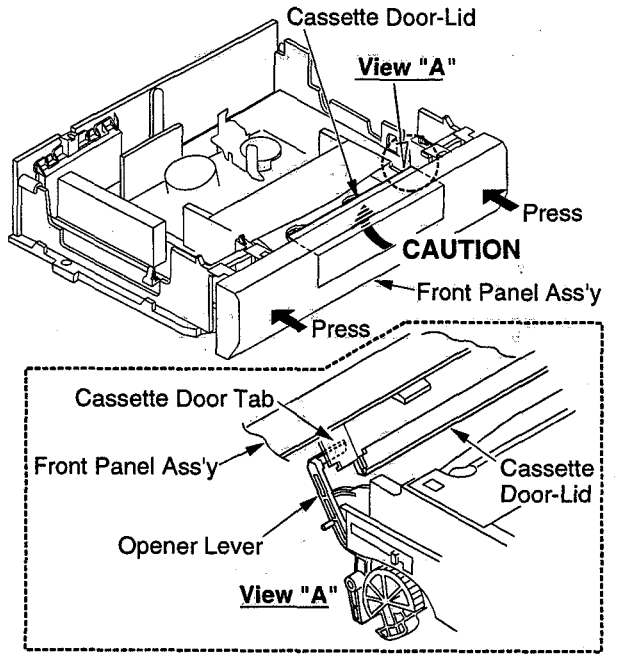


Fig. D4-2

VCR Chassis Unit

Disassembly Procedure

1. Slide the Holder Unit (refer to "Method for Loading/Unloading of Mechanism" in Service Notes) to gain access to 2 Screws (D) for removal.
2. Remove Screws (E), (F), (G), (H), and (I).
3. Remove Chassis Angle.

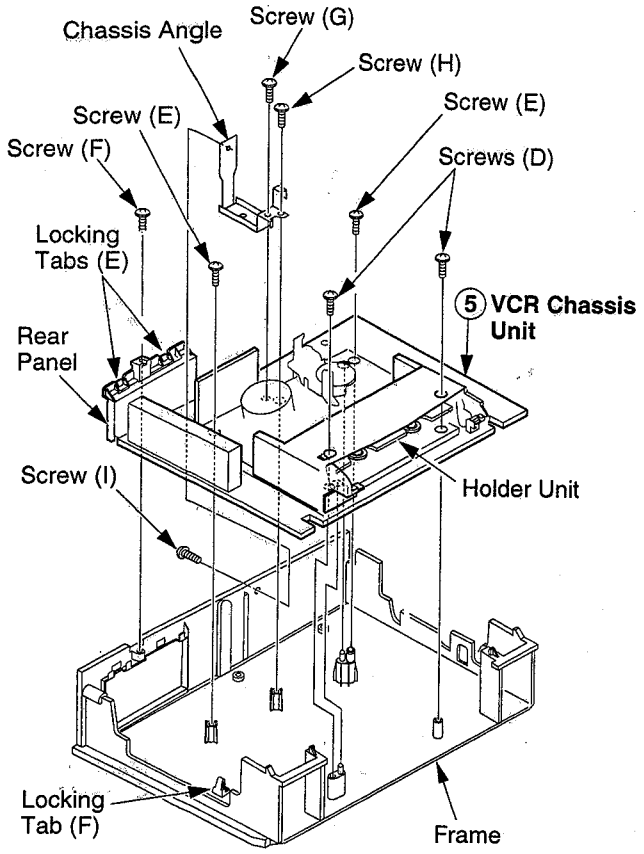


Fig. D5-1

4. Push 2 Locking Tabs (E) inward to release while lifting the Rear Panel.
5. Push Locking Tab (F) outward while gently lifting the left side of the Main C.B.A. (Portion "A").
6. Lift the right side of the Cassette Up Ass'y (Portion "B") and remove VCR Chassis Unit out of the Frame.

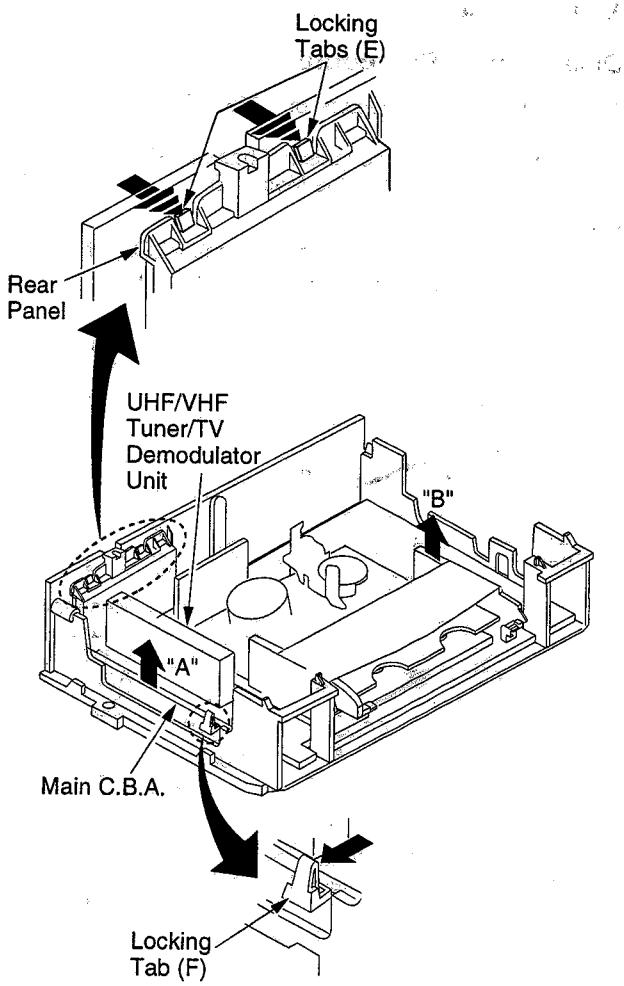


Fig. D5-2

Note:

1. DO NOT pull upward on the UHF/VHF Tuner/TV Demodulator Unit because you may crack the Main C.B.A.
2. Work carefully so as not to break tabs.

Reassembly Notes

1. When installing 2 Screws (D), slide the Holder Unit (refer to "Method for Loading/Unloading of Mechanism" in Service Notes) to tighten screws. Then slide it back to the **EJECT** Position.
   Make sure that Mechanism and Cassette Up Ass'y are in the **EJECT** Position. (Refer to "**EJECT** Position confirmation" in Disassembly/Assembly Procedures of Mechanism.)

Main C.B.A.

Disassembly Procedure

1. Disconnect 4 Connectors of P2531, P2552, P3501 and P4001.
2. Carefully lift the Mechanism Chassis and Cassette Up Ass'y straight out from the Main C.B.A.

Note:
Work carefully so as not to break Sensor LED, when lifting the Mechanism Chassis and Cassette Up Ass'y.

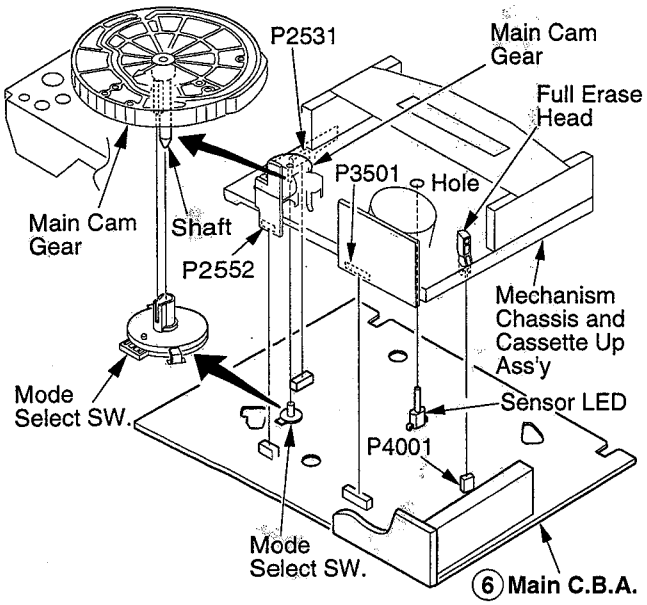


Fig. D6-1

Reassembly Notes

CAUTION

Installation of Mechanism Chassis and Cassette Up Ass'y onto Main C.B.A.

1) Make sure the Mode Select SW. on the Main C.B.A. is in **EJECT** position. If not, rotate the Mode Select SW. until the alignment projection is in the **EJECT** Position.

   Make sure the Mechanism and Cassette Up Ass'y are in the **EJECT** Position. (Refer to "**EJECT** Position confirmation" in Disassembly/Assembly Procedures of Mechanism.)

Mode Select SW. **EJECT** Position

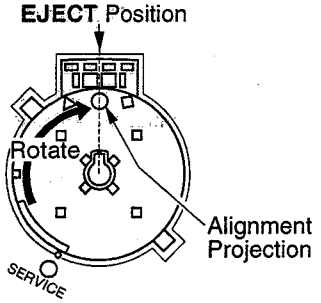


Fig. D6-2

2) Install the Mechanism Chassis and Cassette Up Ass'y straight onto the Main C.B.A. so that the Sensor LED clears the hole in the Mechanism Chassis and that 4 Connectors (P2531, P2552, P3501, and P4001) are aligned and seated securely.

Cassette Up Ass'y

Disassembly Procedure

1. Slide Holder Unit (refer to "Method for Loading/Unloading of Mechanism" in Service Notes) to gain access to 2 Screws (J) for removal.
2. Remove Screw (K).
3. Unhook Spring (A).
4. Slide the Cassette Up Ass'y towards the front to release Locking Tab (G). Then, lift it up and remove.

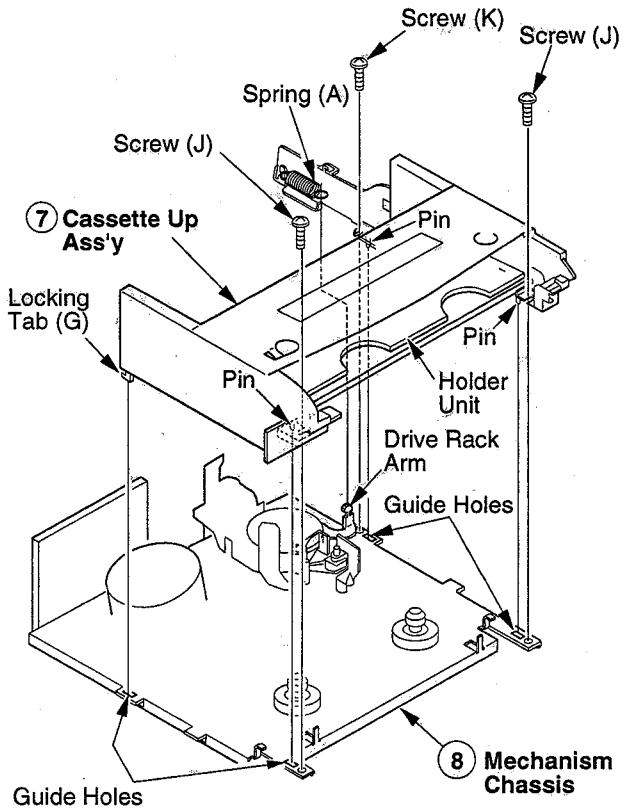


Fig. D7

Reassembly Notes

Installation of Cassette Up Ass'y

1) Confirm that the 3 pins and Locking Tab (G) under the Cassette Up Ass'y are in each of the 4 Guide Holes on the Mechanism Chassis when installing the Cassette Up Ass'y. Then, slide the Cassette Up Ass'y towards the back.
2) Slide Holder Unit (refer to "Method for Loading/Unloading of Mechanism" in Service Notes) to tighten 2 Screws (J) and Screw (K).
   Be careful not to tighten screws too much, or the Cassette Up Ass'y may be bent outward.
   Then,slide it back to the **EJECT** Position.
4) Hook Spring (A) to the Drive Rack Arm on the Mechanism Chassis.

DISASSEMBLY/ASSEMBLY PROCEDURES OF MECHANISM

Disassembly Method

This chart indicates Step/Location No. of Parts to be serviced and prior steps to gain access items to be serviced when disassembling. When reassembling, perform the step(s) in the reverse order.

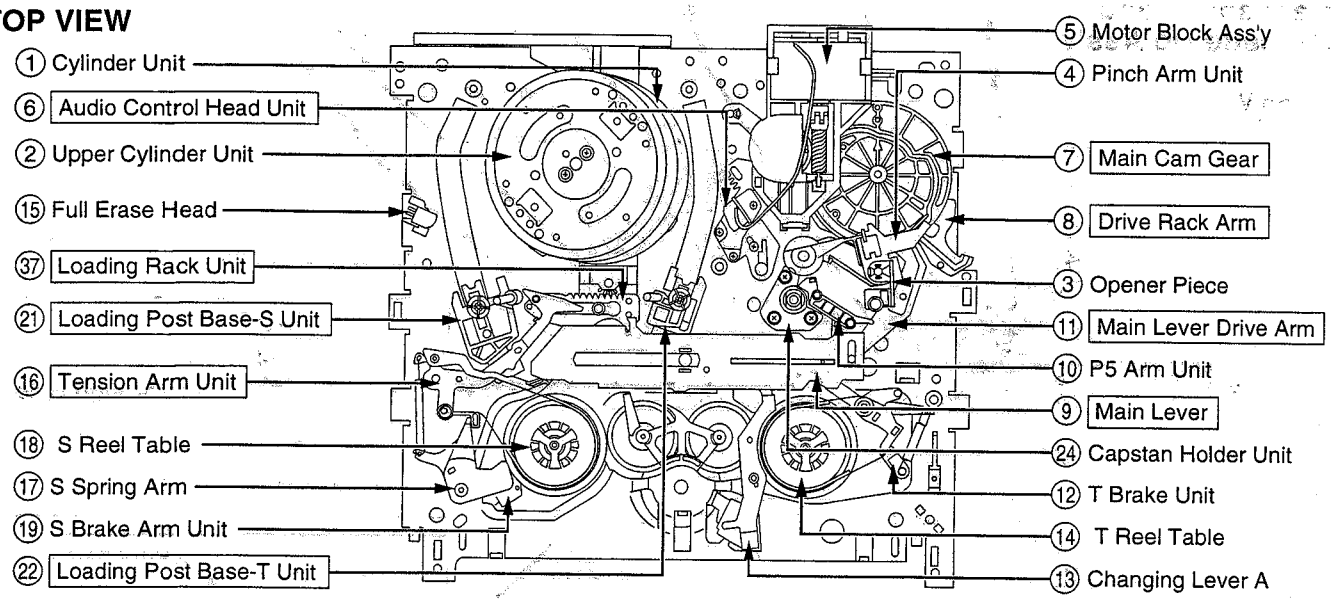
Step /Loc. No.	Part	Prior Step(s)	Step /Loc. No.	Part	Prior Step(s)	Step /Loc. No.	Part	Prior Step(s)	Step /Loc. No.	Part	Prior Step(s)
①	Cylinder Unit	----------	⑪	Main Lever Drive Arm	3, 4, 5, 7, 8, 9	㉑	Loading Post Base-S Unit	16	㉛	S Loading Arm Unit	30
②	Upper Cylinder Unit	----------	⑫	T Brake Unit	9	㉒	Loading Post Base-T Unit	9, 20	㉜	Center Clutch Unit	----------
③	Opener Piece	----------	⑬	Changing Lever A	9	㉓	Capstan Rotor Unit	----------	㉝	Changing Gear Spring	32
④	Pinch Arm Unit	3	⑭	T Reel Table	9, 12, 13	㉔	Capstan Holder Unit	23	㉞	Changing Gear	32, 33
⑤	Motor Block Ass'y	----------	⑮	Full Erase Head	----------	㉕	SS Brake Arm Unit	----------	㉟	Changing Lever-B	32, 33, 34
⑥	Audio Control Head Unit	5	⑯	Tension Arm Unit	----------	㉖	Junction C.B.A.	----------	㊱	Idler Arm Unit	32, 33, 34
⑦	Main Cam Gear	3, 4, 5	⑰	S Spring Arm	----------	㉗	Capstan Stator Unit	23, 25, 26	㊲	Loading Rack Unit	9, 30
⑧	Drive Rack Arm	3, 4, 5, 7	⑱	S Reel Table	16, 17	㉘	Sub Rotor	23, 25, 26, 27	㊳	Grounding Plate Unit	----------
⑨	Main Lever	----------	⑲	S Brake Arm Unit	9, 16, 17, 18	㉙	PCB Holder	23, 25, 26, 27	㊴	FG Head	----------
⑩	P5 Arm Unit	9	⑳	Main Lever Guide	9	㉚	T Loading Arm Unit	----------			

Step/Loc. No.: Order of steps in procedure. Part : Part to be removed or installed. Prior Step(s) : Steps to be completed prior to the current step.

Note: When the mechanical parts surrounded by rectangle are removed or replaced, be sure to perform necessary adjustment or alignment procedures according to the mechanical adjustment procedures section and disassembly/assembly procedures of mechanism section.

Perform all disassembly and alignments procedures in EJECT Position.

TOP VIEW



BOTTOM VIEW

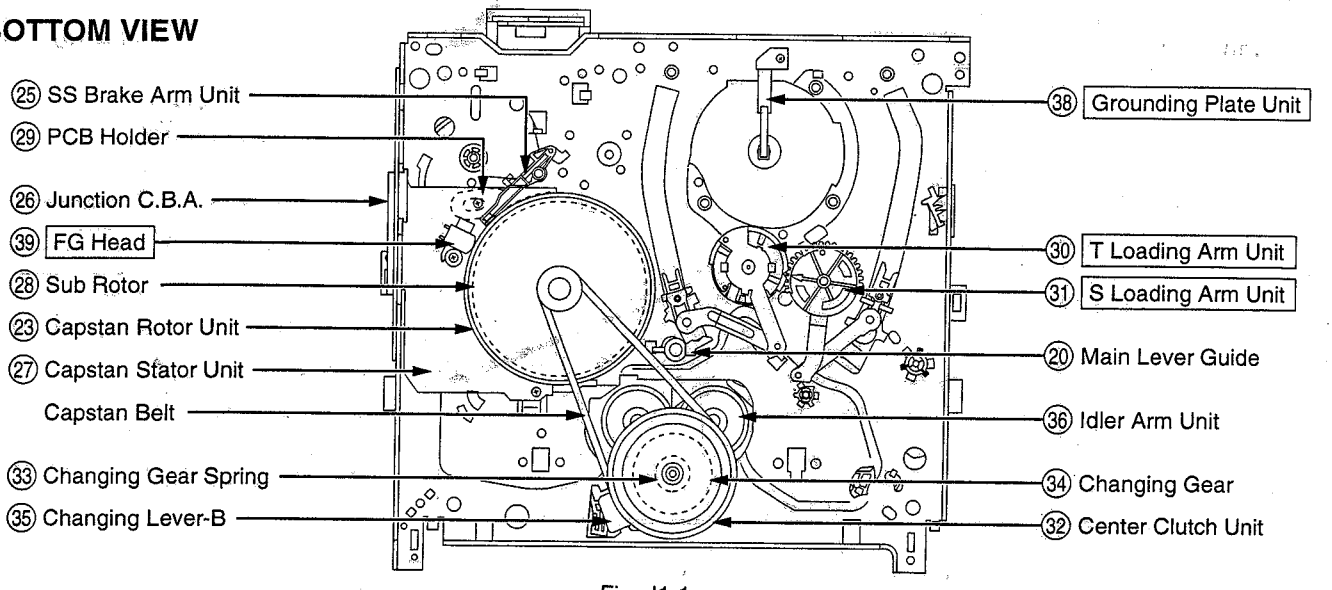


Fig. J1-1

EJECT Position Confirmation

Check the following alignment points to confirm that the Mechanism and Cassette Up Ass'y are in the **EJECT** Position from the top side.

(By using alignment points ❖1 & ❖2, it is possible to roughly confirm the S & T Loading Arm Units from the top side, even though they are located on the bottom side of the mechanism chassis.)

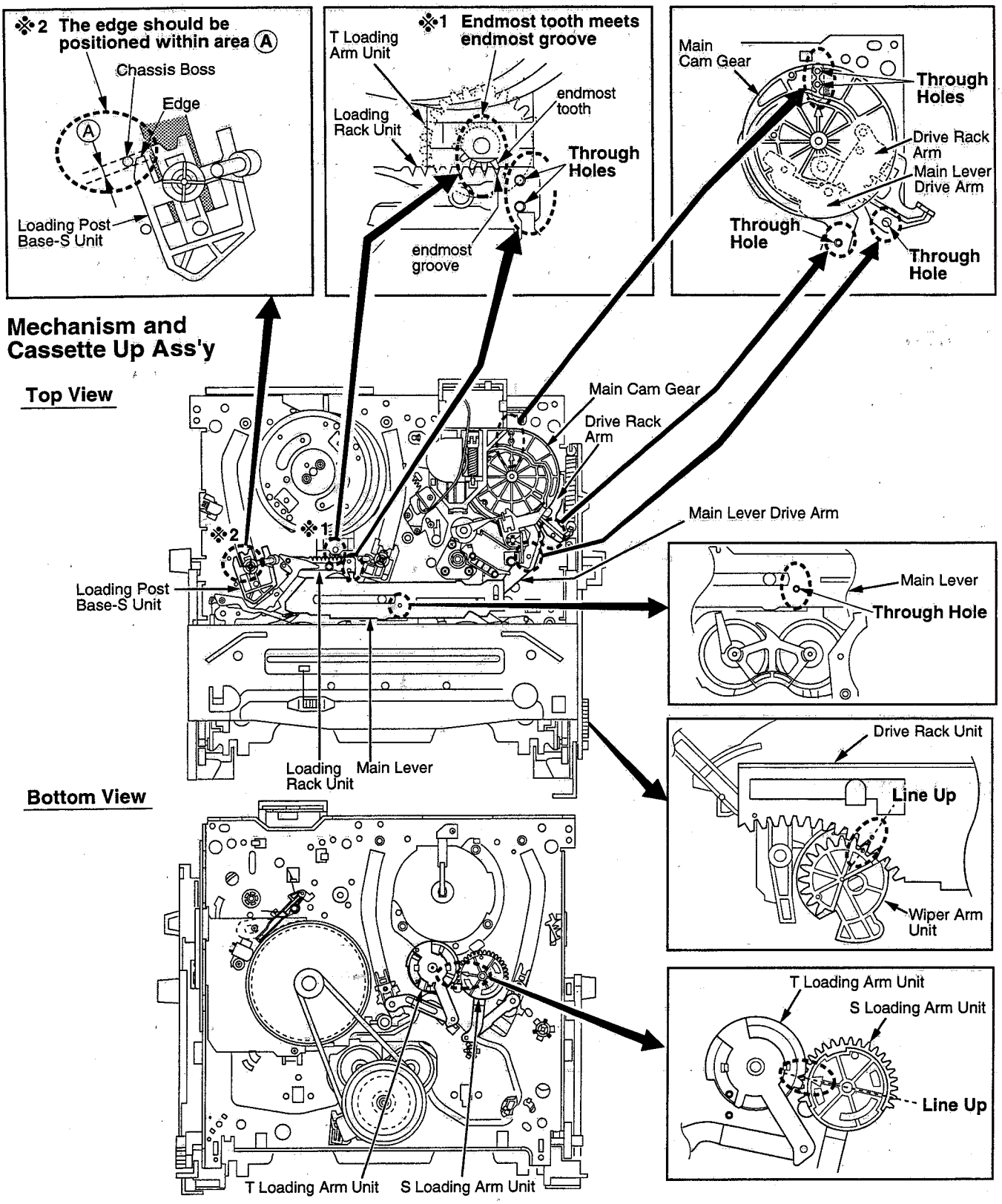


Fig. J1-2

Cylinder Unit

Disassembly Procedure

1. Remove 3 Screws (A) and 2 Screws with Washers (A). Then, lift the Cylinder Unit and the Head Amp C.B.A. out from the mechanism.
2. Unsolder P3502 and P3503. Then, remove the Head Amp C.B.A.

Note:
Use extreme care when removing or replacing the Cylinder Unit. Do not touch the Video Heads during servicing.

CAUTION:
When removing the Cylinder Unit, avoid touching IC2601 on the Head Amp C.B.A. because it is **HOT** during operation.

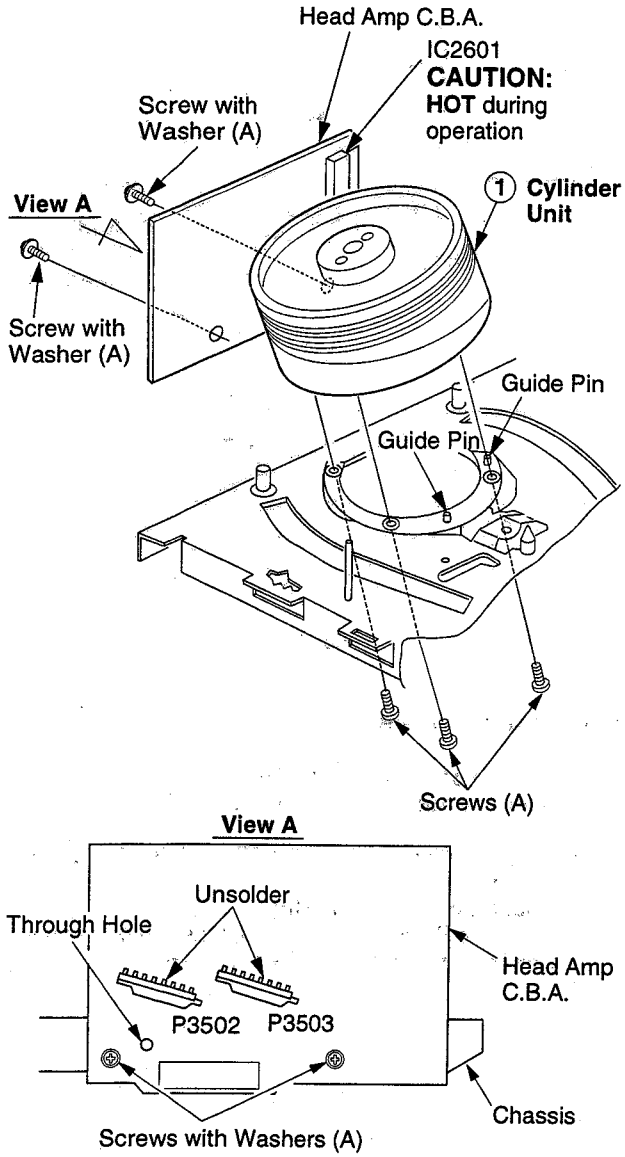


Fig. J2-1

Reassembly Notes

1. Use extreme care when removing or replacing the Cylinder Unit. Do not touch the Video Heads during servicing.
2. **Installation of Cylinder Unit**
   1) Install the Cylinder Unit so that the 2 holes on the lower surface of the Cylinder Unit fit over the 2 Guide Pins on the Cylinder Base and loosely secure it with 3 Screws (A).
   2) Install the Head Amp C.B.A. so that the hole on the Head Amp C.B.A. lines up with the hole on the chassis and secure it with 2 Screws with Washers (A).
   3) Position the Cylinder Unit so that foil patterns of connectors (P3502 and P3503) and Head Amp C.B.A. are aligned, and tighten 3 Screws (A).
   4) Solder connectors (P3502 and P3503).
3. **Adjustment of Grounding Plate Unit**
   1) After installing, make sure that the Grounding Plate Unit, on the bottom side of mechanism chassis, is positioned on the right side of the Cylinder shaft so that the center line of the plate is just less than 1.0 mm measured from the center of the Cylinder shaft.
   If required, adjust the plate position by loosening Black Screw (A).
   Never install the Grounding Plate Unit on the left side of the Cylinder shaft.
   Incorrect positioning will cause cylinder buzz.

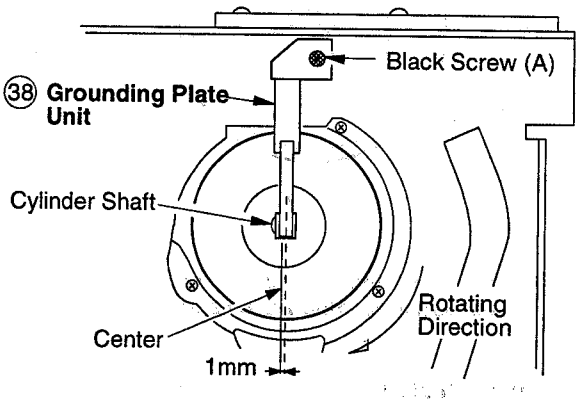


Fig. J2-2

   2) After installing, perform the "Tape Interchangeability Adjustment" procedures.

Upper Cylinder Unit

Disassembly Procedure

1. Remove 2 Screws with Washers (B).
2. Carefully lift the Upper Cylinder Unit from the shaft.

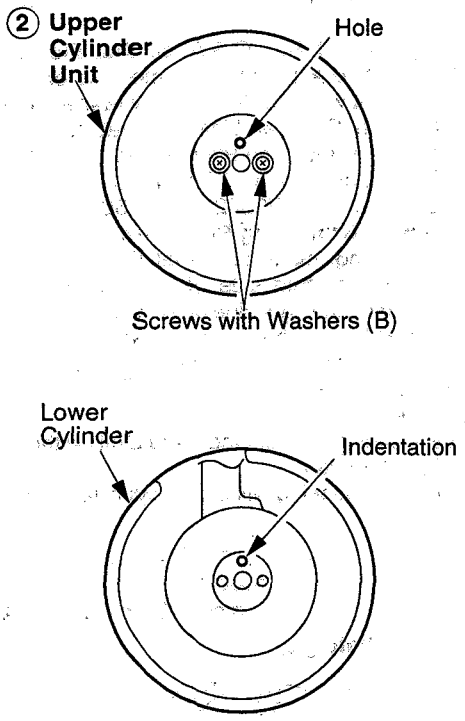


Fig. J3

Note:
Use extreme care when removing or replacing the Upper Cylinder Unit. Do not touch the Video Heads during servicing.

Reassembly Notes

1. Use extreme care when removing or replacing the Cylinder Unit. Do not touch the Video Heads during servicing.
2. **Alignment of Upper Cylinder Unit**
   1) When installing, make sure that the hole on the Upper Cylinder is aligned with the indentation on the Lower Cylinder.
   2) After installing, perform the "Tape Interchangeability Adjustment" procedures.

Opener Piece, Pinch Arm Unit, Motor Block Ass'y, and Audio Control Head Unit

Disassembly Procedure

1. Remove the Opener Piece by pulling it upward while releasing 2 Locking Tabs (A).
2. Pull up on the Pinch Arm Unit.
3. Release 3 Locking Tabs (B) and remove Screw with Washer (C). Then, remove the Motor Block Ass'y and Audio Control Head Unit.

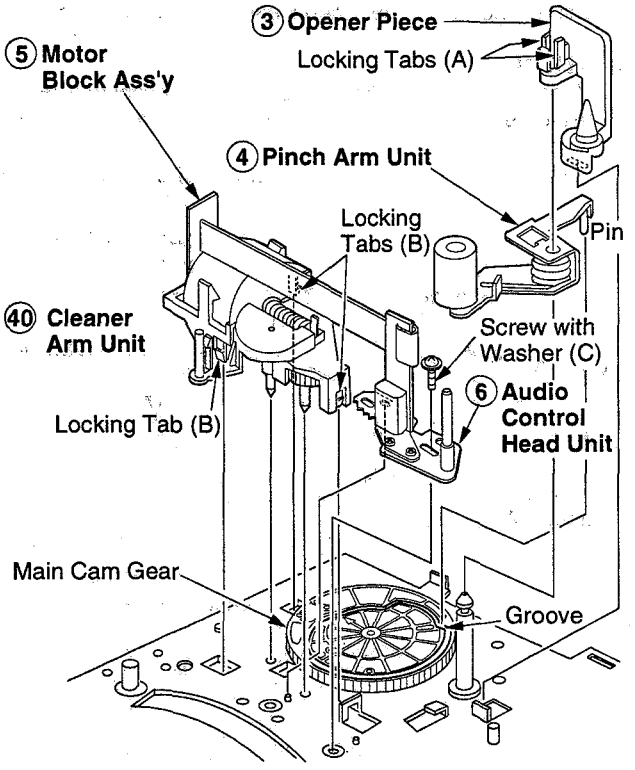


Fig. J4

Reassembly Notes

1. **Installation of Audio Control Head Unit**
   1) Install the Audio Control Head Unit before Motor Block Ass'y.
   2) After installing, perform the "Tape Interchangeability Adjustment" procedures.
2. **Installation of Pinch Arm Unit**
   1) Install the Pinch Arm Unit so that the Pin of Pinch Arm Unit fits in the groove of Main Cam Gear.

Main Cam Gear and Drive Rack Arm

Disassembly Procedure

1. Remove the Main Cam Push Nut. (Refer to Note.)
2. Pull up on the Main Cam Gear.
3. Turn the Drive Rack Arm fully counterclockwise as shown.
4. Pull up on the Drive Rack Arm.

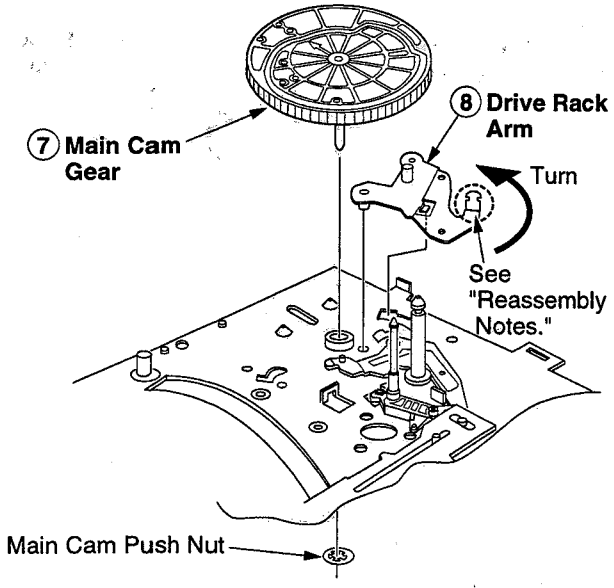


Fig. J5-1

Note:
When removing the Main Cam Push Nut, press the Main Cam Gear to make space between the Main Cam Push Nut and Bottom of Chassis. Then, remove the Main Cam Push Nut using a screwdriver etc.

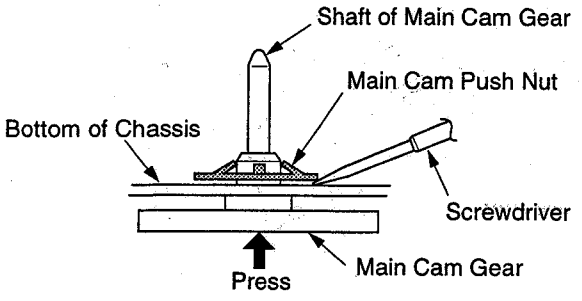


Fig. J5-2

Reassembly Notes

1. **Alignment of Main Cam Gear, Drive Rack Arm, and Main Lever Drive Arm**
   1) Confirm that the hole (C) on the Main Lever Drive Arm is aligned with the hole on chassis (Through hole (C)) as shown.
   2) Install the Drive Rack Arm so that the hole (A) is aligned with the hole on chassis (Through hole (A)) as shown.
   3) Install the Main Cam Gear so that the 2 holes (B) marked "E" are aligned with the hole on chassis (Through hole (B)) as shown. ("E" indicates the EJECT position.)

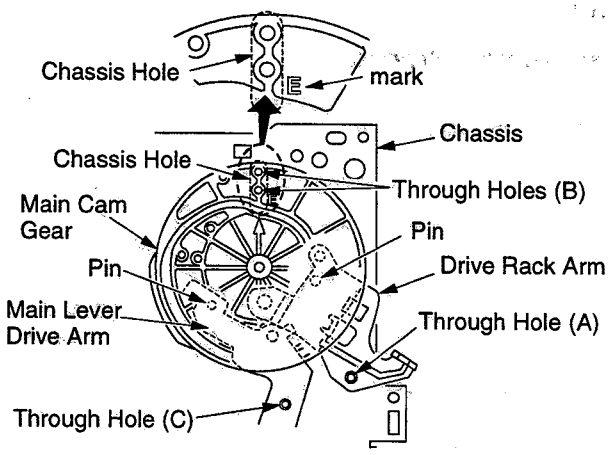


Fig. J5-3

2. **Holes on Main Cam Gear**
   1) The holes on Main Cam Gear should be aligned with the hole on chassis in each mode (Through hole) as shown.

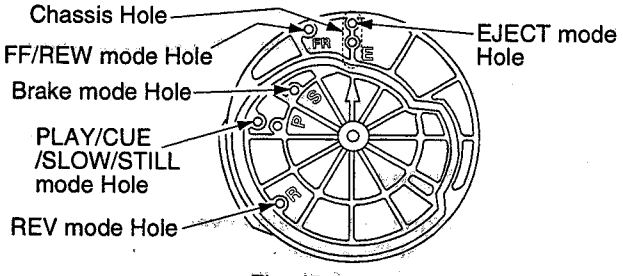


Fig. J5-4

3. **Installation of Main Cam Gear and Main Cam Push Nut**
   1) Position the chassis upside down and place a Support under the Main Cam Gear.
   Install the Main Cam Push Nut with Needlenose Pliers etc. so that it is flush with the chassis.

   There may be some slight scratches on the Shaft of Main Cam Gear, when removing the Main Cam Gear. In case that the Main Cam Gear can be installed securely without tottering, it is fine to use the one. If any tottering, replace a new one.

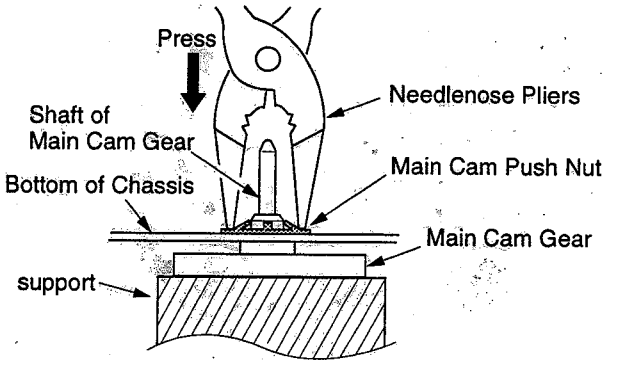


Fig. J5-5

4. The Main Cam Push Nut is not reusable. Install a new one.
5. Make sure to hook Spring (A) of the Cassette Up Ass'y to the Drive Rack Arm. Refer to "Cassette Up Ass'y" in "Disassembly/Assembly Procedures of Cabinet."

Main Lever

Disassembly Procedure

1. Release 2 Locking Tabs (C) and Locking Tab (D). Then, remove the Main Lever.

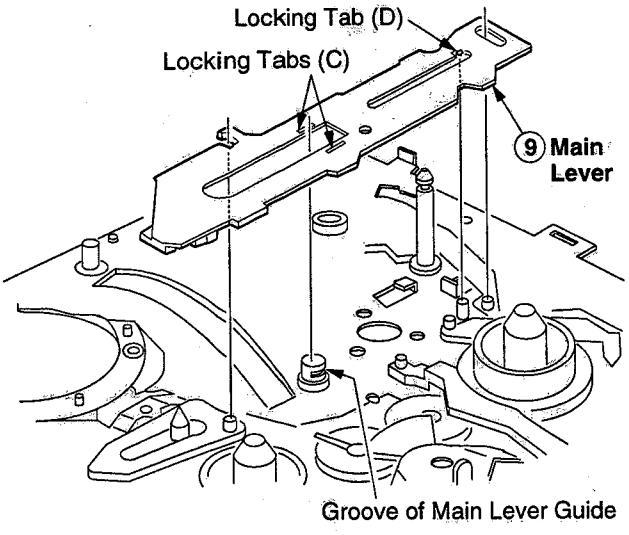


Fig. J6-1

Reassembly Notes

1. **Installation/Alignment of Main Lever**
   1) Make sure that the 2 holes of Loading Rack Unit are aligned with the holes on chassis (Through holes).
   2) Turn the P5 Arm Unit to the Capstan Rotor Unit Shaft side.
   3) Turn the T Brake Unit to the T Reel Table side.
   4) Position the Main Lever so that the Loading Rack Unit Pin fits in the niche of Main Lever.
      Confirm that pins and bosses are in the position and that the hole of Main Lever is aligned with the hole on chassis (Through hole) as shown. Then, install the Main Lever.
   5) Push down the Locking Tabs (C) to set in the groove of Main Lever Guide.

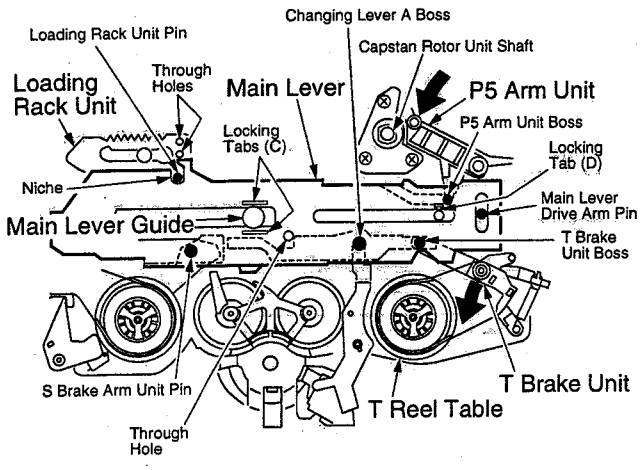


Fig. J6-2

P5 Arm Unit and Main Lever Drive Arm

Disassembly Procedure

1. Pull up on the P5 Arm Unit.
2. Turn the Main Lever Drive Arm fully counterclockwise as shown.
3. Pull up on the Main Lever Drive Arm.

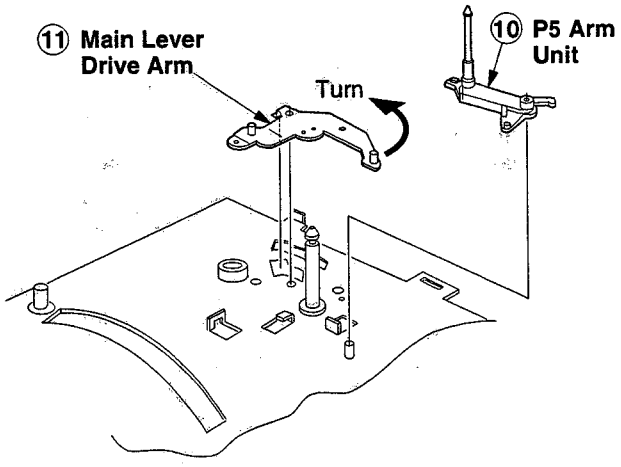


Fig. J7-1

Reassembly Notes

1. **Alignment of Main Lever Drive Arm**
   1) Install the Main Lever Drive Arm so that the hole (C) is aligned with the hole on the chassis Through hole (C)) as shown.

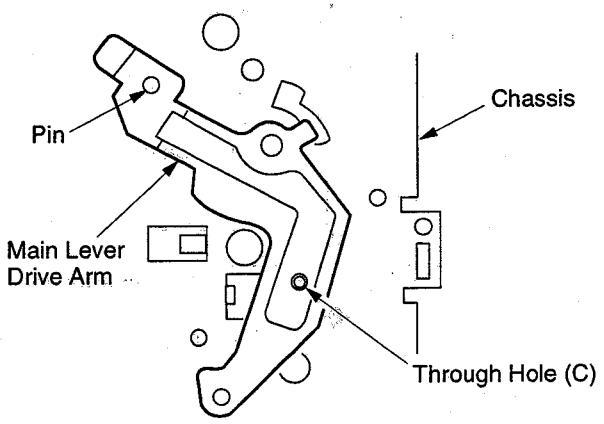


Fig. J7-2

T Brake Unit, Changing Lever A, and T Reel Table

Disassembly Procedure

1. Remove the T Brake Unit while releasing Locking Tab (E) located under the chassis.
2. Remove Cut Washer (A). Then, pull up on the Changing Lever A and remove.
3. Pull up on the T Reel Table.

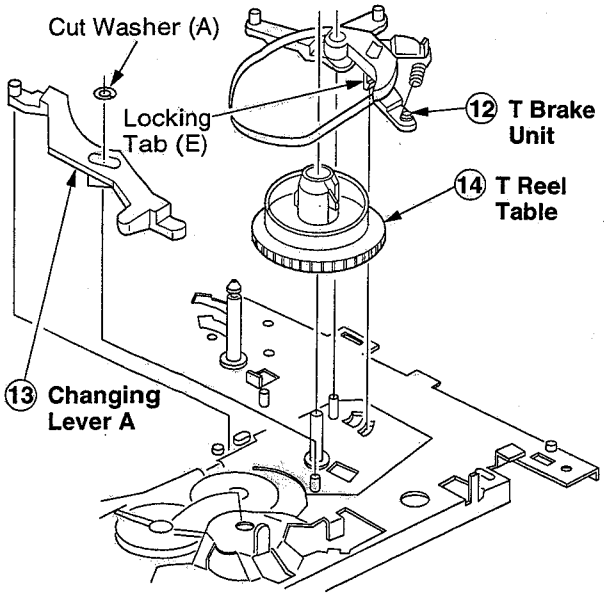


Fig. J8-1

Reassembly Notes

1. **How to distinguish between S Reel Table and T Reel Table**

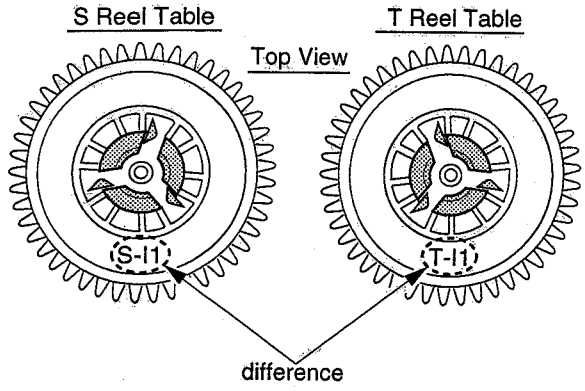


Fig. J8-2

2. Cut Washer (A) is not reusable. Install a new one.

Full Erase Head, Tension Arm Unit, S Spring Arm, and S Reel Table

Disassembly Procedure

1. Turn the Full Erase Head fully counterclockwise while releasing Locking Tab (F) as shown. Then remove it.
2. Unhook Spring (A).
3. Remove the Tension Arm Unit by pulling it up while releasing 2 Locking Tabs (G).
4. Remove the S Spring Arm while releasing Locking Tab (H).
5. Pull up on the S Reel Table.

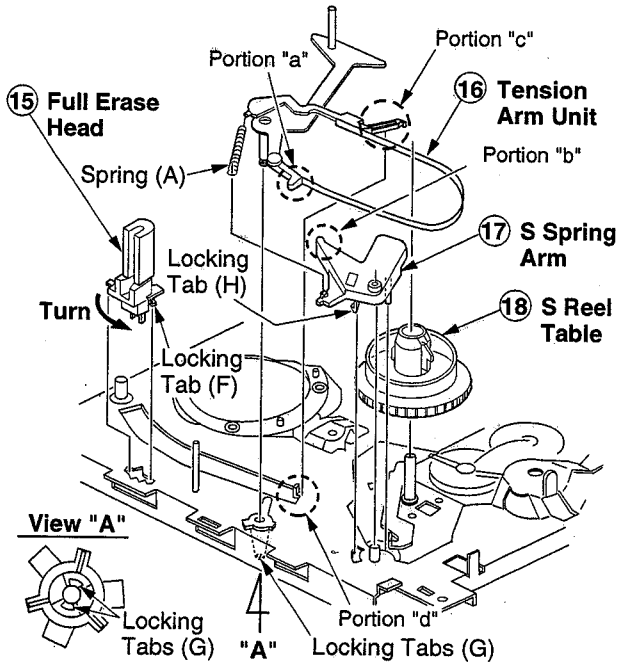


Fig. J9-1

Reassembly Notes

1. **Confirmation/Adjustment of Tension Arm Unit**
   1) When installing Tension Arm Unit and S Spring Arm, confirm "a," "b," "c," and "d" portion are in the proper position as shown.

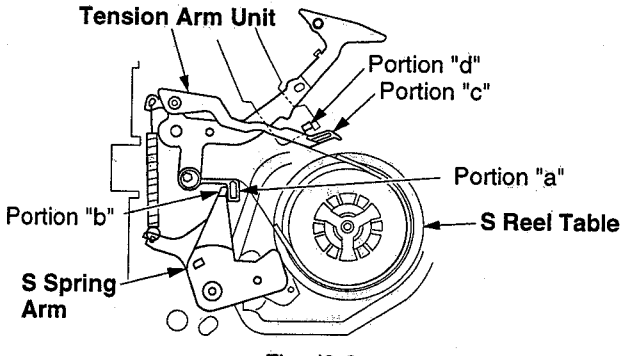


Fig. J9-2

   2) After installing, perform the "Tension Post Adjustment" procedures.

S Brake Arm Unit, Main Lever Guide, Loading Post Base -S, and Loading Post Base -T Unit

Disassembly Procedure

1. Remove the S Brake Arm Unit while releasing 2 Locking Tabs (I).
2. Remove the Main Lever Guide while releasing Locking Tab (J).
3. Slide the Loading Post Base -S and T Units to the end of the guide slots to remove.

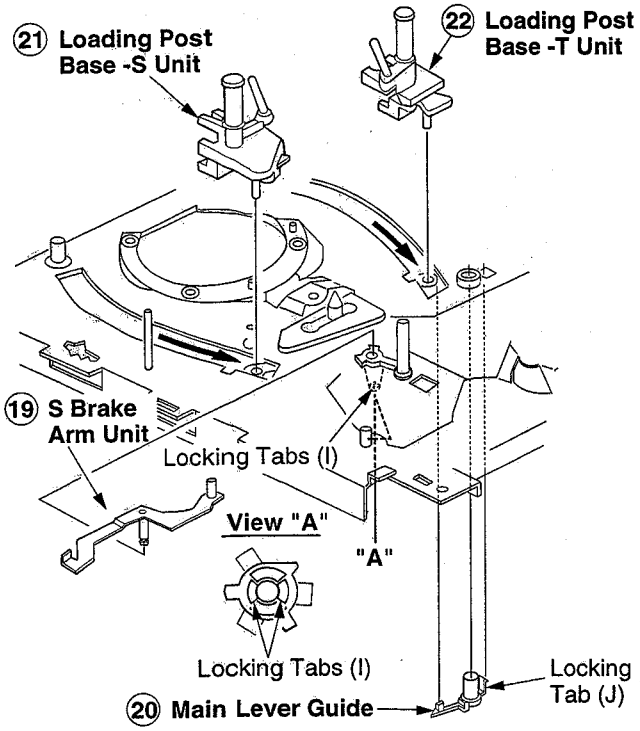


Fig. J10

Reassembly Notes

1. **Adjustment of Loading Post Base -S Unit and Loading Post Base -T Unit**
   1) After installing, perform the "P2 and P3 Post Height Adjustment" procedures and "Tape Interchangeability Adjustment" procedures.

Capstan Rotor Unit, Capstan Holder Unit, and SS Brake Arm Unit

Disassembly Procedure

1. Remove the Capstan Belt.
2. Cut the Stopper with a cutter to remove.
3. Pull up on the Capstan Rotor Unit.
4. Remove 3 Screws (B). Then remove the Capstan Holder Unit.
5. Unhook Spring (B).
6. Turn the SS Brake Arm Unit so that the Tab (A) lines up with the niche. Then, remove the SS Brake Arm Unit.

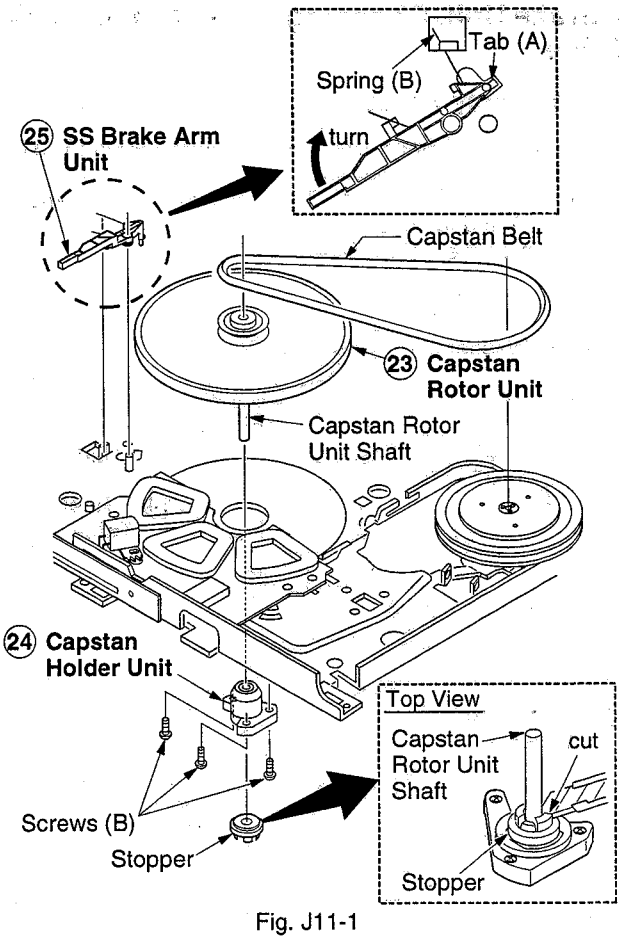


Fig. J11-1

Reassembly Notes

1. **Installation of Capstan Rotor Unit**
   1) Insert the Capstan Rotor Unit Shaft into the hole of the Capstan Holder Unit.
   2) Place a support under the Capstan Rotor Unit shaft. Install the Stopper. Be careful not to scratch the shaft or Capstan Holder Unit.
   3) Remove the support. Press the top end of the shaft down so that the Stopper is properly positioned. You should be able to move the shaft up and down slightly when properly positioned.

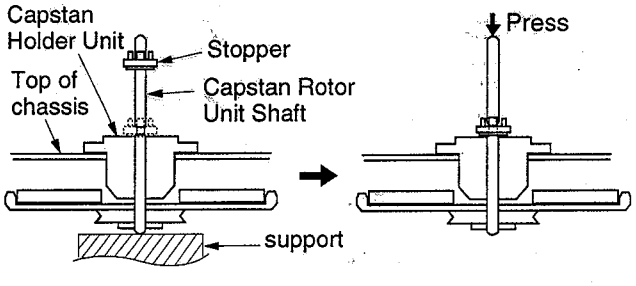


Fig. J11-2

2. **Capstan Rotor Kit**
   Capstan Rotor Unit, Capstan Holder Unit, and Stopper are supplied as a Capstan Rotor Kit only. (Kit No. VXPS0382K2) They are not reusable. Install all new parts.
   Because even invisible scratches on the Capstan Rotor Unit shaft and the Capstan Holder Unit, made when cutting the Stopper, could cause tape path instability.

Junction C.B.A., Capstan Stator Unit, Sub Rotor, and PCB Holder

Disassembly Procedure

1. Remove 2 Screws (C).
2. Unsolder P2532 on the Junction C.B.A. Then, remove the Junction C.B.A.
3. Remove Screw (D) and 2 Screws with Washers (D), (E). Then, remove Capstan Stator Unit, Sub Rotor, and PCB Holder.

CAUTION:
When removing Capstan Stator Unit, avoid touching IC2501 on the Capstan Stator Unit because it is **HOT** during operation.

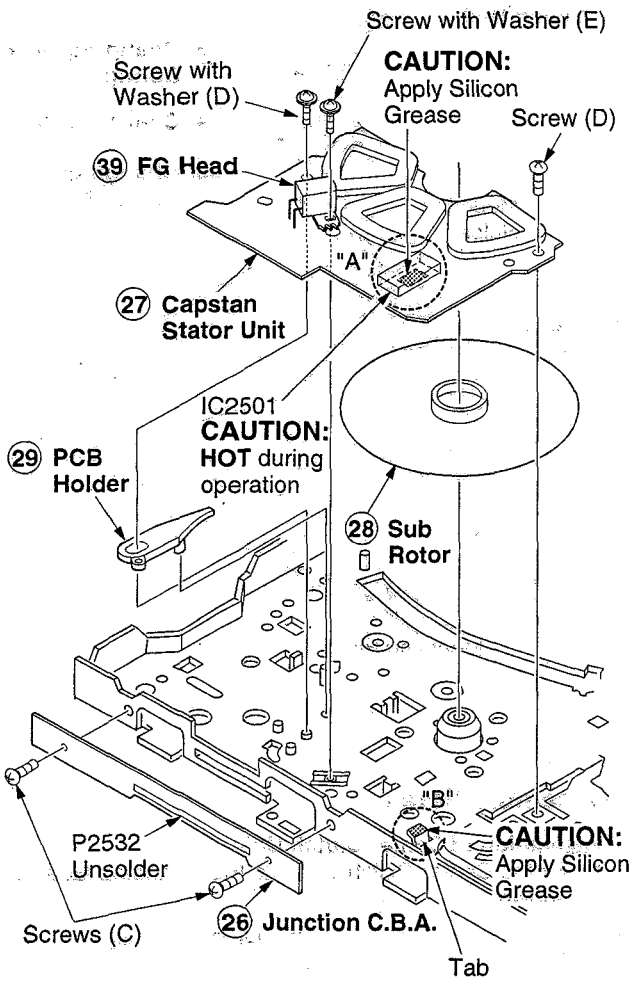


Fig. J12-1

Reassembly Notes

1. **Application of Sillicon Grease**

CAUTION

When installing the IC2501 or Capstan Stator Unit, be sure to apply Silicon Grease (VFK1301) as shown. Be careful not to touch other parts with greased portion to prevent grease depletion.

Silicon Grease Application

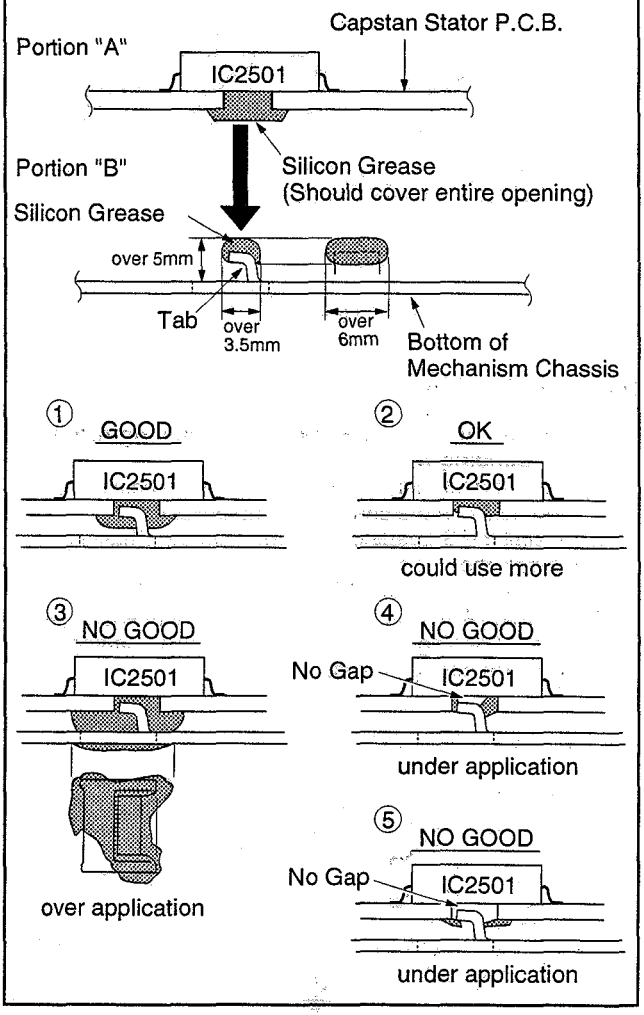


Fig. J12-2

2. **Capstan Stator Kit**
   1) Capstan Stator Unit, Capstan Rotor Unit, Capstan Holder Unit, and Stopper are supplied as a Capstan Stator Kit only (Kit No. VEMS0316K2).
   However, IC2501(AN3845SC) is available separately as a replacement part.
   Capstan Rotor Unit, Capstan Holder Unit, and Stopper are not reusable. Install all new parts.
   Because even invisible scratches on the Capstan Rotor Unit shaft and the Capstan Holder Unit, made when cutting the Stopper, could cause tape path instability.
3. **Adjustment of FG Head**
   1) After installing, perform the "FG Head gap Adjustment" procedures.

T Loading Arm Unit and S Loading Arm Unit

Disassembly Procedure

1. Remove the T Loading Arm Unit by pulling it up while releasing Locking Tab (K).
2. Pull up on the S Loading Arm Unit.

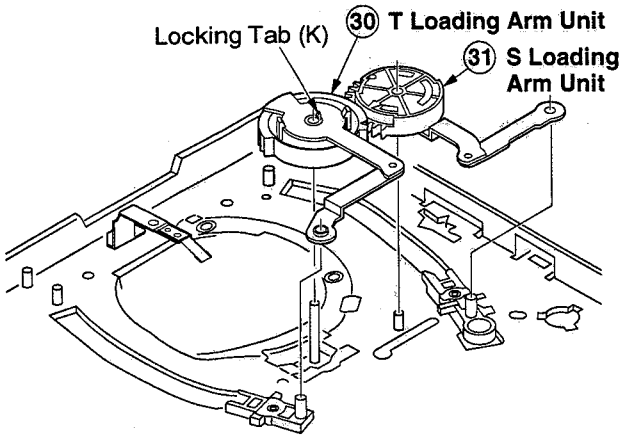


Fig. J13-1

Reassembly Notes

1. **Alignment of Loading Rack Unit, T Loading Arm Unit, and S Loading Arm Unit**
   1) Slide the Loading Rack Unit so that the holes on it and the holes on the chassis line up properly.
   2) Install the S Loading Arm Unit onto the Chassis.
   3) Install the T Loading Arm Unit so that the triangle-shaped indent is aligned with the arrow on the S Loading Arm Unit as shown. Confirm that each hole on the T Loading Arm Unit, Chassis, and Loading Rack Unit are through holes.

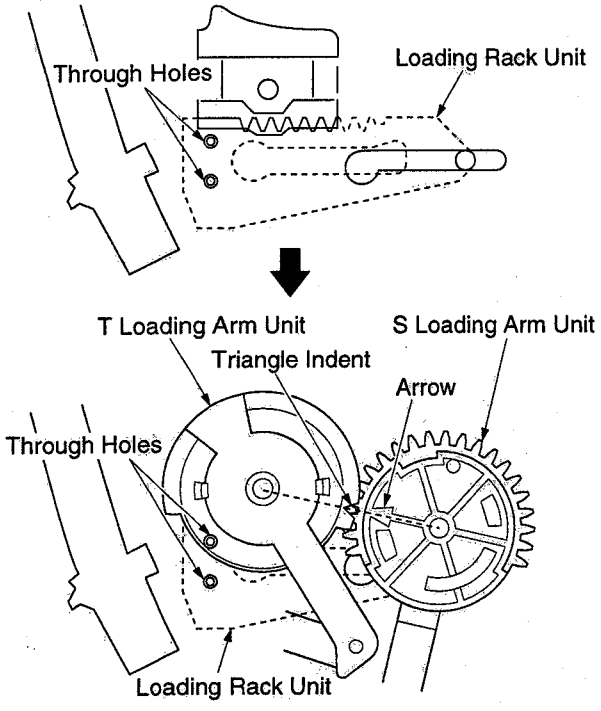


Fig. J13-2

Center Clutch Unit, Changing Gear Spring, Changing Gear, Changing Lever-B, and Idler Arm Unit

Disassembly Procedure

1. Remove Cut Washer (B). Then remove the Center Clutch Unit, Changing Gear Spring, and Changing Gear.
2. Remove Changing Lever -B so that the 2 Mounting Holes clear Mounting Pins.
3. Pull up on the Idler Arm Unit.

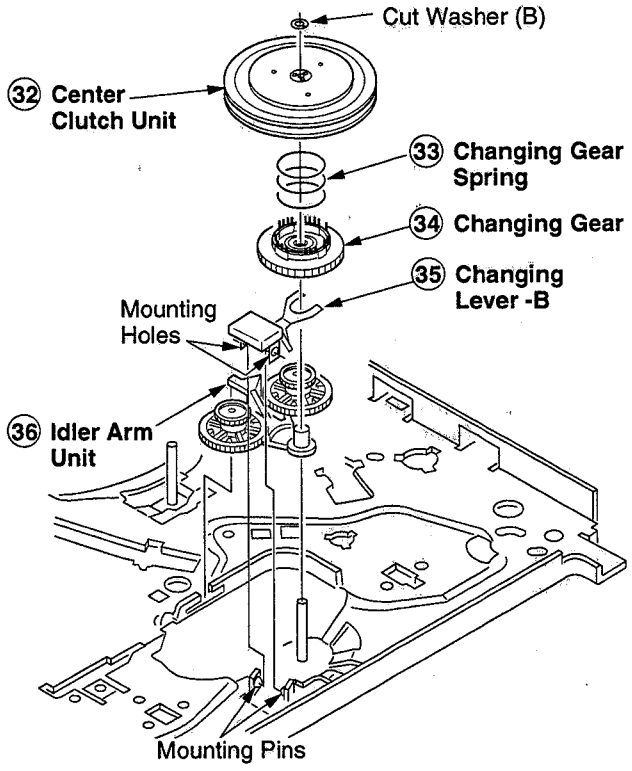


Fig. J14-1

Reassembly Notes

1. **Installation of Center Clutch Unit**
   1) Fit the Center Clutch Unit into the Changing Gear as shown.

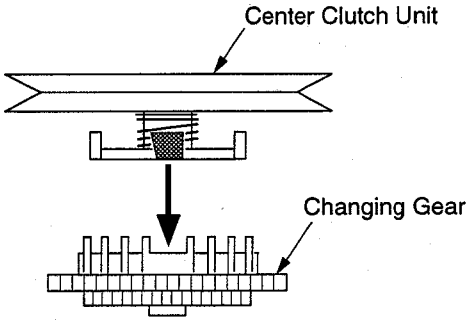


Fig. J14-2

2. Cut Washer (B) is not reusable. Install a new one.

Loading Rack Unit

Disassembly Procedure

1. Slide the Loading Rack Unit as indicated by the arrow. Then, pull up on the Loading Rack Unit.

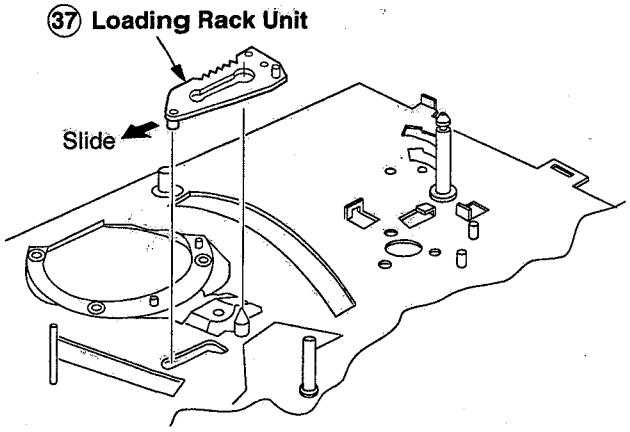


Fig. J15

Reassembly Notes

1. **Alignment of Loading Rack Unit**
   1) When installing Loading Rack Unit, refer to Reassembly Notes of "T Loading Arm Unit and S Loading Arm Unit."

DISASSEMBLY/ASSEMBLY PROCEDURES OF CASSETTE UP ASS'Y

Top Plate, Wiper Arm Unit, and Holder Unit

Disassembly Procedure

1. Remove Top Plate by releasing 2 Locking Tabs (A) on the left side and 2 Locking Tabs (B) on the right side of the Top Plate.
2. Remove Wiper Arm Unit by releasing 2 Locking Tabs (C). Then, remove the Holder Unit.

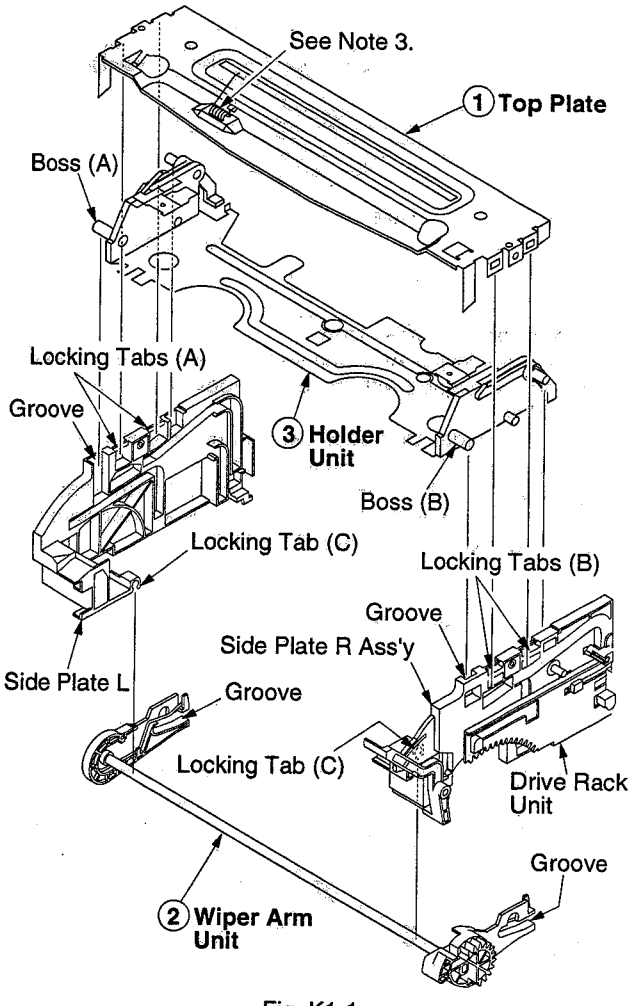


Fig. K1-1

Reassembly Notes

1. **Alignment of Wiper Arm Unit and Drive Rack Unit**
   1) Slide the Drive Rack Unit to the far right as indicated by the arrow.
   2) Install the Wiper Arm Unit so that the hole on the Wiper Arm Unit is aligned with the hole on the Drive Rack Unit.

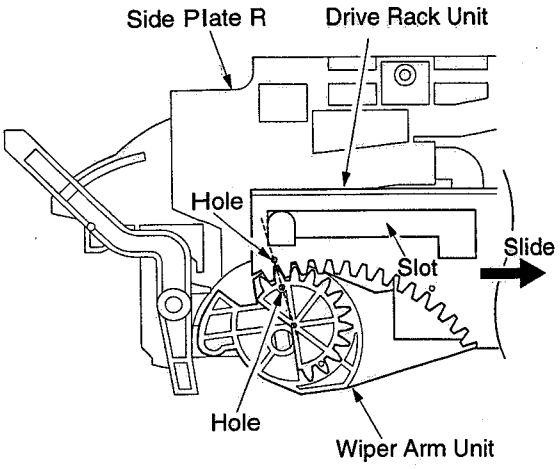


Fig. K1-2

2. **Installation of Holder Unit**
   1) Turn the Wiper Arm Unit so that the grooves on each end are aligned with the each groove on Side Plate L and R.
   2) Insert Holder Unit boss (A) and (B) into the grooves (See Fig. K1-1 on previous page).
   3) Finally, in the EJECT Position, confirm that the protrudence on the Wiper Arm Unit is aligned with the indentation on the Drive Rack Unit.

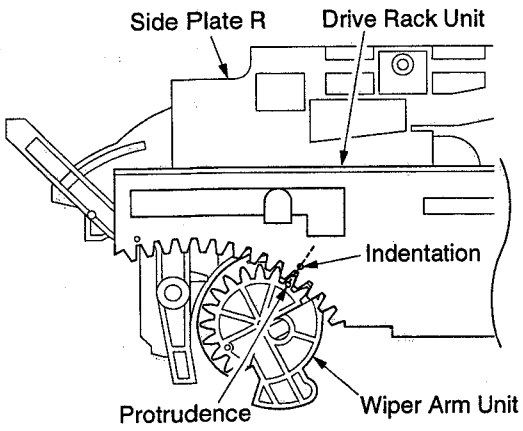


Fig. K1-3

3. As an ESD countermeasure, make sure the spring is in contact with Top Cover.

Sensor Cover, Opener Lever, and Drive Rack Unit

Disassembly Procedure

1. Remove the Sensor Cover by releasing Locking Tab (D).
2. Remove the Opener Lever by releasing 2 Locking Tabs (E). Then remove the Drive Rack Unit.

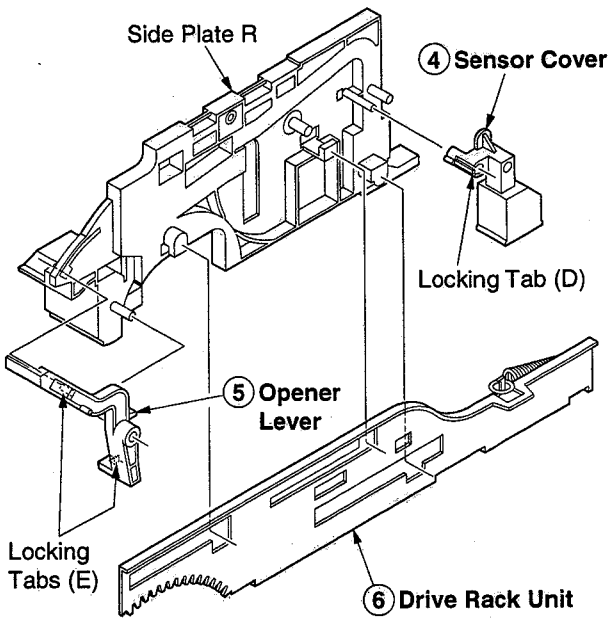
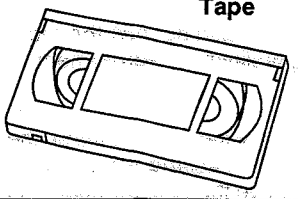


Fig. K2

ADJUSTMENT PROCEDURES

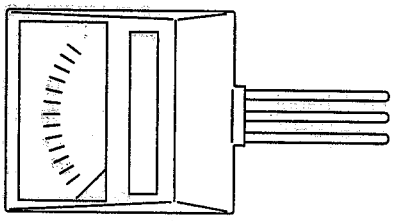
SERVICE FIXTURES AND TOOLS

VFMS0003H6 **VHS Alignment Tape**

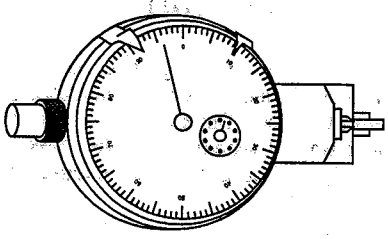


Video	Color Bar & Monoscope
Audio	6kHz(MONO)

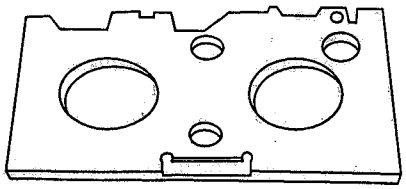
Back Tension Meter (Made in USA., Purchase Locally)



VFKS0009 **Reel Table Height Fixture**

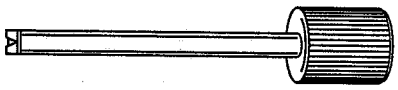


VFKS0010 **Post Adjustment Plate**

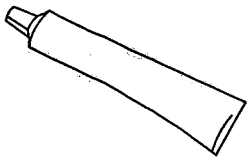


VFKS0081 **Grease**

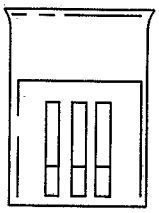
VFK0329 **Post Adjustment Driver**



VFK1301 **Silicon Grease**



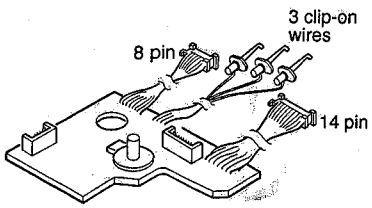
VFK27 **Head Cleaning Stick**



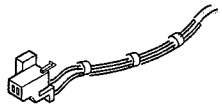
VFK0330 **H-Position Adjustment Driver**

VUZS0002 **Extension Cable Kit**

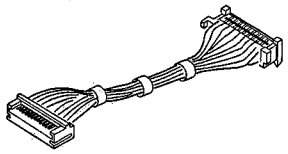
Mode Select SW. Ass'y (VUVS0001)



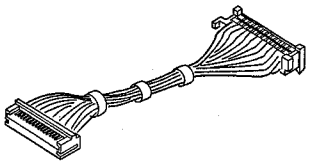
Extension Cable -1 (VUVS0002)



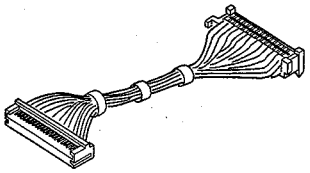
Extension Cable -2 (VUVS0005) for 2 Head Model



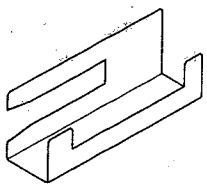
Extension Cable -2 (VUVS0004) for 4 Head Model



Extension Cable -2 (VUVS0003) for Hi-Fi Model



VSCS2534 **Main C.B.A. Holder**



MECHANICAL ADJUSTMENT

CLEANING PROCEDURE FOR THE UPPER CYLINDER UNIT

1. While slowly turning the Upper Cylinder Unit counterclockwise by hand, gently rub the Video Heads with a Head Cleaning Stick (VFK27) moistened with Ethanol. When using a Cleaning Cassette, make sure to use "DRY" type only and be aware that excessive use can shorten head life.

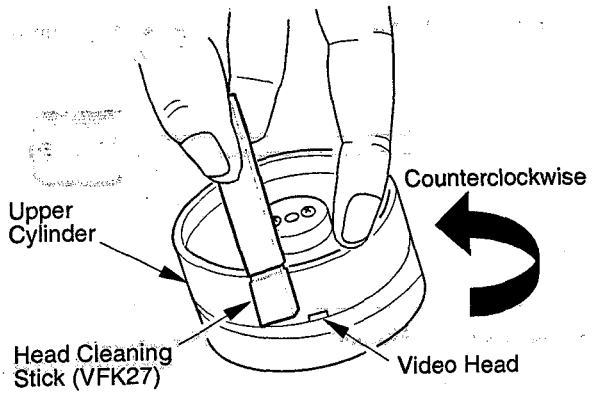


Fig. M1

Note:

1) Do not rub vertically or apply excess pressure to the Video Heads.
   Do not turn the Upper Cylinder Unit clockwise while cleaning.
2) After cleaning, use a Dry Head Cleaning Stick (VFK27) to remove any Ethanol remaining on the cylinder tape path. Otherwise, tape damage will occur.

ADJUSTMENT PROCEDURES

TENSION POST ADJUSTMENT

Purpose:

To maintain a constant tape tension so that the tape runs with stability by performing preliminary adjustment.

Symptom of Misadjustment:

1) If the adjusted value is below the specification, the tape tension is not sufficient, thus causing a tape slack.
2) If the adjusted value is above the specification, the tape tension is too high, thus causing tape damage.

Equipment Required:

2 mm Hex. Wrench ..... (Purchase Locally)

1. Remove the Cassette Up Ass'y.
2. Plug the AC plug into an AC outlet.
3. Place the unit in the Service Mode. Refer to "Service Mode" in the "Service Notes" section of this manual.
   The power comes on and the unit goes into the PLAY Mode.
4. Using a (2 mm) Hex. Wrench, adjust the nut on the Tension Adjust Piece (counterclockwise only) so that there is a space of 1 mm between the left edge of the P1 Post and the right edge of the Tension Post. Make sure that the center of the Hex. Wrench hole is within Area "A".
5. After adjustment, remove the Hex. Wrench.
6. Press the STOP/EJECT button to place the unit in the EJECT Mode.
7. Release the unit from the Service Mode. Refer to "Service Mode" in the "Service Notes" section of this manual.

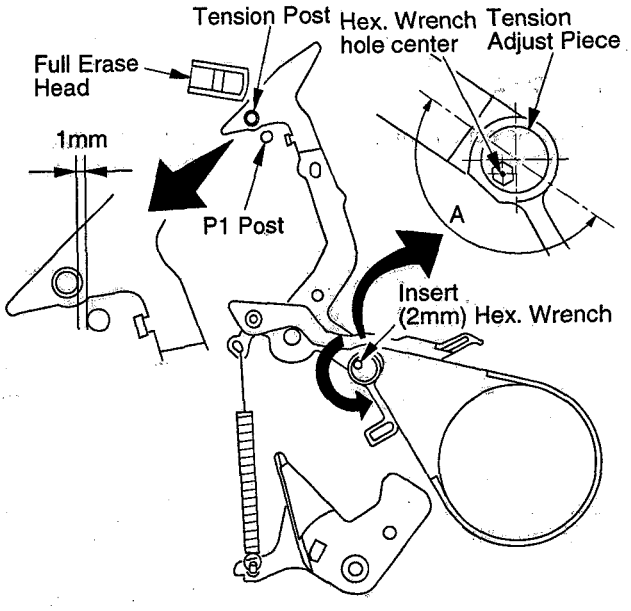


Fig. M2

BACK TENSION CONFIRMATION

Purpose:
To fine adjust the Back Tension so that the tape runs smoothly with a constant tension.

Symptom of Misadjustment:
1) If the tape tension is less than the specified value, the tape cannot come into proper contact with the Video Heads, resulting in poor picture playback.
2) If the tape tension is too high, the tape will soon be damaged.

Measurement Procedure

Equipment Required:
Back Tension Meter (Made in U.S.A., Purchase Locally)
VHS Cassette Tape (120-Minute Tape)

Specification ..... 25 +/- 2.5g

1. Play back a T120 cassette tape from the beginning for approx. 10 to 20 seconds to stabilize tape movement.
2. Insert a Tension Meter into tape path and measure the back tension.
3. If the reading is out of specification, make sure that there is no dust or foreign material between the Tension Band of Tension Arm Unit and the Reel Table.
   If cleaning does not correct the tension measurement, replace the Tension Spring and the Tension Arm Unit.

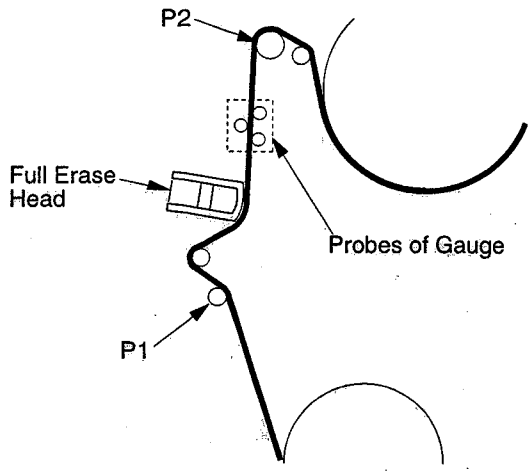


Fig. M3-1

Note:
1) Be sure that the three probes of the meter are all in solid contact with the tape, but not touching any other parts of the mechanism.
2) It is recommended that measurements be repeated at least three (3) times because the tension meter is very sensitive to external vibrations.

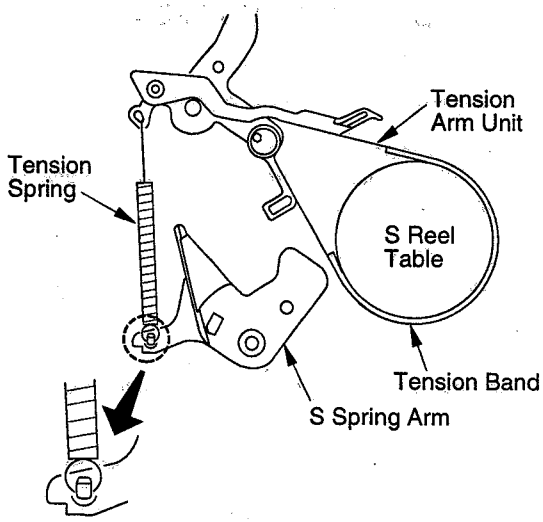


Fig. M3-2

FG HEAD GAP ADJUSTMENT

Purpose:
To properly pick up the FG Signal.

Symptom of Misadjustment:
If the FG Signal is not properly picked up, Servo Operation cannot be achieved.

Equipment Required:
Oscilloscope

Specification ..... 0.13 +/- 0.02mm

1. Remove the VCR Chassis Unit and then place it upside down.
2. Remove the Main C.B.A.
3. Slightly loosen Black Screw (A). Then set the Screwdriver (#1 or #2 Phillips Driver) into the Hole (A). Turn the screwdriver counterclockwise until the FG Head touches the rotor. Then turn it slightly clockwise to the clearance as specified.
4. Tighten Black Screw (A).
5. Reinstall the Main C.B.A.

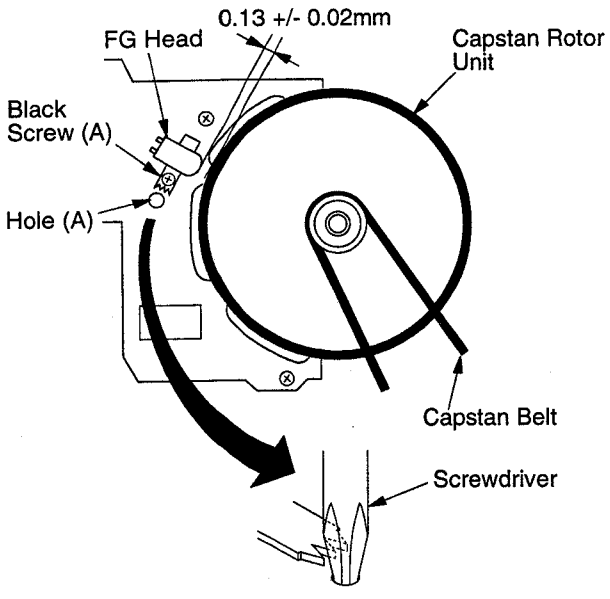


Fig. M4

Note:
Do not touch the outside circumference of the rotor surface with any tool and keep magnetic material away from the rotor magnet (especially metal particles).

Confirmation of Signal Level
1) Supply a Video Signal to the Video Input Jack.
2) Insert a cassette tape and place the unit in SLP recording mode.
3) Connect the oscilloscope to Pin 7 of P2502 on the Capstan Stator Unit.
Confirm that the signal level is greater than 15mVp-p.

P2 AND P3 POST HEIGHT ADJUSTMENT (PRELIMINARY ADJUSTMENT)

Purpose:
To properly align the position of the tape with the Cylinder Lead so that the tape runs with stability.

Symptom of Misadjustment:
1) Since the Envelope Waveform Signal cannot be tracked properly, the Playback picture will be poor.
2) Since the tape does not run smoothly, the tape will eventually be damaged.
3) Tape interchangeability is poor.

Equipment Required:
Post Adjustment Plate ..... (VFKS0010)
Reel Table Height Fixture ..... (VFKS0009)
Post Adjustment Driver ..... (VFK0329)

1. Remove the Cassette Up Ass'y.
2. Position the Post Adjustment Plate over the reels.
3. Place the fixture on the Post Adjustment Plate and zero the fixture (DO NOT use the cut-out portion of the post adjustment plate.)

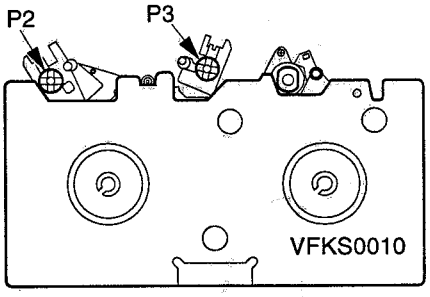


Fig. M5-1

4. Lower each post below the top edge of the Post Adjustment Plate. Then, raise each post until it contacts the foot of the Reel Table Height Fixture. For proper adjustment, the foot of that should be positioned as shown.

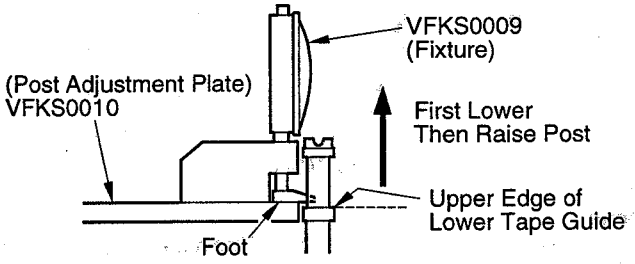


Fig. M5-2

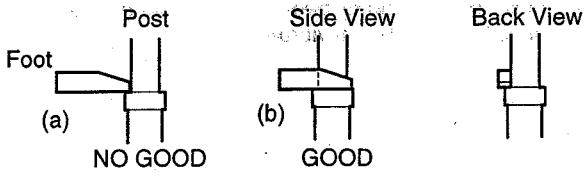


Fig. M5-3

CAUTION:
1) Overtightening P2 and P3 posts may cause the threads to strip.
2) Upon completion of this procedure, perform the "Envelope Output Adjustment" procedures.

TAPE INTERCHANGEABILITY ADJUSTMENT (FINAL ADJUSTMENT)

Note:
To perform these adjustment/confirmation procedures, set the tracking to the neutral position.

Equipment Required:
Dual Trace Oscilloscope
VHS Alignment Tape ..... (VFMS0003H6)
Post Adjustment Driver ..... (VFK0329)
H-Position Adjustment Driver ..... (VFK0330)

1. ENVELOPE OUTPUT ADJUSTMENT

Purpose:
To achieve a satisfactory picture and secure precise tracking.

Symptom of Misadjustment:
If the envelope is output poorly, much noise will appear in the picture. Then the tracking will lose precision and the playback picture will be distorted by any slight variation of the tracking control circuit.

Equipment Required:
Post Adjustment Driver ..... (VFK0329)

1. Connect the oscilloscope to TP3002 on the Video Signal Process Section of the Main C.B.A. Use TP6205 as a trigger.
2. Place a jumper between TP6003 on the Video Signal Process Section and +5V(TP6009) on the System Control Section of the Main C.B.A. to defeat Auto Tracking.
3. Eject the tape and insert it again to access the Neutral Tracking position.
4. Play back the alignment tape and confirm that the RF envelope appears.
5. With Post Adjust Driver, adjust P2 and P3 post height so that the envelope waveform (V_1/V-max. is 0.7 or more.) becomes as flat as possible (No envelope drop). If the envelope drop appears on the left-half of the waveform, adjust P2 post height. If the envelope drop appears on the right-half of the waveform, adjust P3 post height.

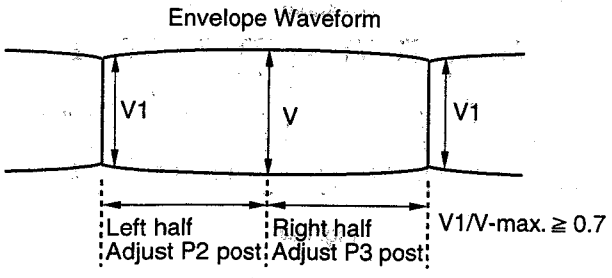


Fig. M6-1

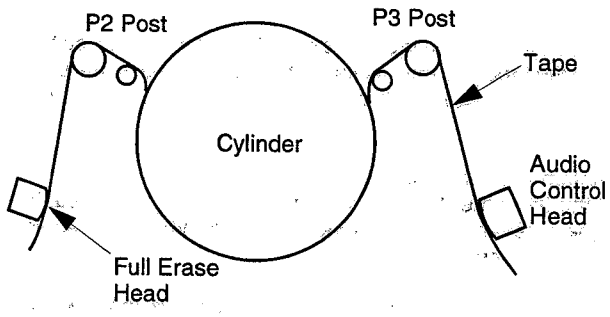


Fig. M6-2

Note:
To confirm adjustment, press the Tracking Control Up or Down button on remote control. Make sure that the envelope waveform remains flat. If not, readjust P2 and/or P3 post heights.

6. After adjustment, confirm that the tape travels without curling at P2 and P3 posts.
7. Remove the jumper after completing the adjustment procedure.

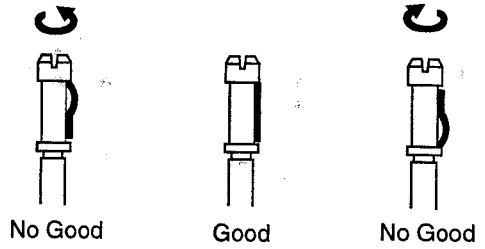


Fig. M6-3

Note:
Overtightening P2 and P3 posts may cause the threads to strip.

2. AUDIO CONTROL HEAD TILT ADJUSTMENT

Purpose:
To confirm that the tape runs smoothly. In particular, confirm that the tape properly picks up the Audio Signal at the upper part of the head and the Control Signal at the lower part of the head.

Symptom of Misadjustment:
If the tilt of the Audio Control Head is poorly adjusted, the tape will eventually be damaged. An intermittent Blue screen may be seen in Playback.

1. Play back a T120 cassette tape and check that the tape travels smoothly between the upper and lower guides of the P4 post.
2. If necessary, adjust Black Screw (B) clockwise until the tape begins to curl at the lower edge of the P4 post. Then adjust the screw counterclockwise until the curling is eliminated.

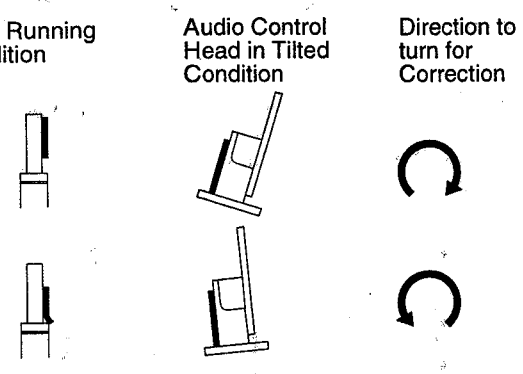


Fig. M7

3. AUDIO CONTROL HEAD HEIGHT ADJUSTMENT

The height of the Audio Control Head replacement part is preset at the factory.

Purpose:
To be sure the tape runs properly along the Control Head.

Symptom of Misadjustment:
If the control signal is not properly picked up, Servo Operation cannot be achieved. A Blue screen will be seen in Playback.

This confirmation is required when the Audio Control Head is replaced.

1. Play back a T120 cassette tape and check that the lower edge of the tape runs approximately 0.25 mm above the lower edge of the Audio Control Head.
2. If necessary, adjust Black Screws (A) and (B) clockwise to lower the tape or counterclockwise to raise.

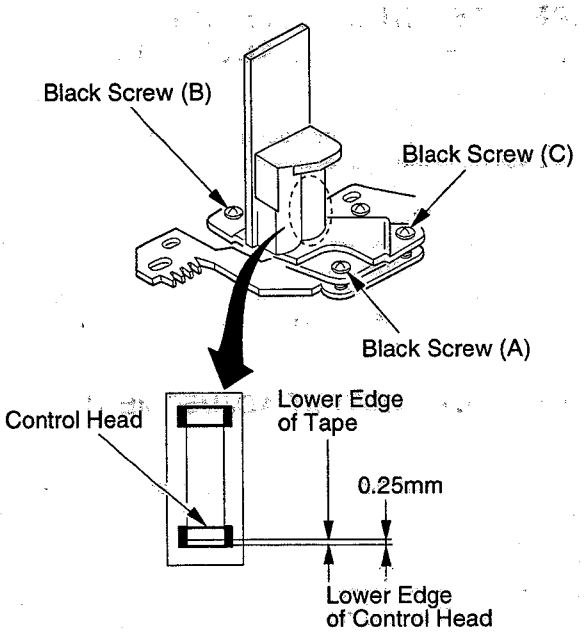


Fig. M8

4. AUDIO CONTROL HEAD AZIMUTH ADJUSTMENT

Purpose:
To adjust the position and height of the Audio Control Head so that it meets the tape tracks properly.

Symptom of Misadjustment:
If the position of the Audio Control Head is not properly adjusted, the Audio S/N Ratio is poor.

1. Connect the oscilloscope to the audio output jack on the rear side of the deck.
2. Play back the 6kHz Monaural Audio portion of the alignment tape.
3. Adjust Black Screw (C) on the Audio Control Head base so that the output level is at maximum.

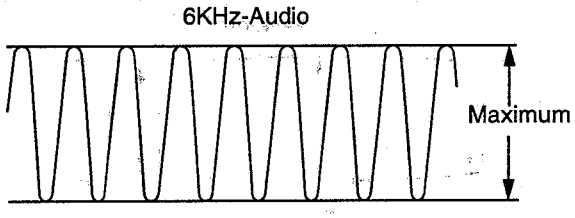


Fig. M9

4. Confirm the height of the Audio Control Head is proper. If not, readjust Black Screws (A) and (B).

5. AUDIO CONTROL HEAD HORIZONTAL POSITION ADJUSTMENT

Purpose:
To adjust the Horizontal Position of the Audio Control Head.

Symptom of Misadjustment:
If the Horizontal Position of the Audio Control Head is not properly adjusted, a maximum envelope cannot be obtained at the Neutral Position of the Tracking Control Circuit.

1. Connect the oscilloscope to TP3002 on the Video Signal Process Section of the Main C.B.A. Use TP6205 as a trigger.
2. Place a jumper between TP6003 on the Video Signal Process Section and +5V(TP6009) on the System Control Section of the Main C.B.A. to defeat Auto Tracking.
3. Eject the tape and insert it again to access the Neutral Tracking position.
4. Play back the alignment tape and confirm that the RF envelope appears.
5. If adjustment is required, loosen the Black Screw (D) and tighten it lightly. Set the H-Position Adjustment Driver into the Hole (A). Then slowly turn the fixture either clockwise or counterclockwise so that the envelope is at maximum.
6. Before finding the center of the maximum period of the envelope, rotate the fixture back and forth slightly to confirm the limits on either side of the maximum period.
7. Push the Tracking Control Up Button (on the Remote Control) several times (count the number of times pushed) until the maximum envelope is reduced to 1/2.
8. Reset the tracking to the neutral position by ejecting the tape and reinserting it. Push the Tracking Control Down Button (on the Remote Control) several times (count the number of times pushed) until the maximum envelope is reduced to 1/2.
9. If the number of pushing is not the same, then loosen the Black Screw (D) and set the H-Position Adjustment Driver into the Hole (A) to find the center point. Then repeat the above procedure to determine the center point.
10. Tighten Black Screw (D).
    (The Black Screw (D) should be in the approximate center of the hole.)
11. Remove the jumper between TP6003 and +5V(TP6009).

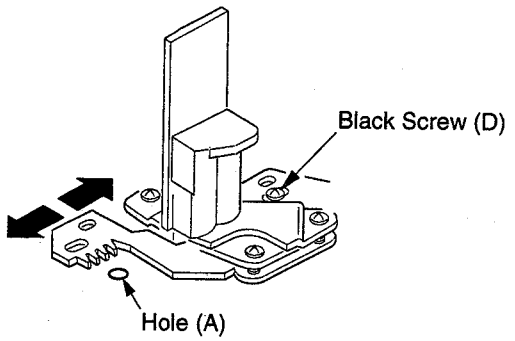


Fig. M10

Note:
Old type of H-Position Adjustment Driver (VFK0136) can be used for this adjustment.

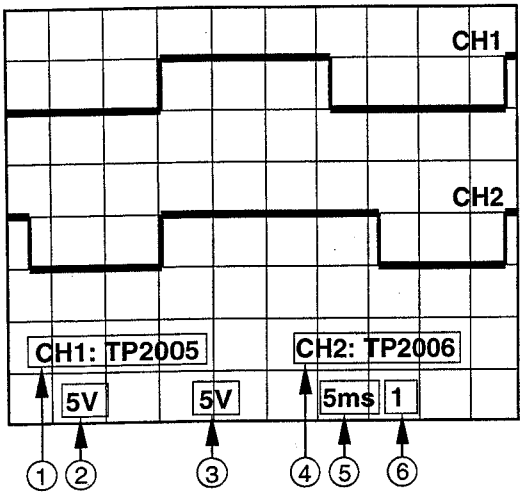
ELECTRICAL ADJUSTMENT

TEST EQUIPMENT

To do all of these electrical adjustments, the following equipment is required.

1. Dual-Trace Oscilloscope
   Voltage Range : 0.001 to 50V/Div.
   Frequency Range : DC to 50MHz
   Probes : 10:1, 1:1
2. Color TV Receiver or Monitor
3. Plastic Tip Driver and Non-Metal Driver
4. Isolation Transformer (Variable)
5. VHS Alignment Tape (VFMS0003H6)
6. AC Millivolt Meter
   Voltage Range : 0 to 1Vrms.
7. MTS/SAP Signal Generator
   (TV Multi-Channel Sound Modulator (U.S.A.))

HOW TO READ THE ADJUSTMENT PROCEDURES



1. Connecting Point
3. Volts/DIV
5. Time/DIV
2. Volts/DIV
4. Connecting Point
6. Trigger Channel of the Scope
1 : CH1
2 : CH2

Fig. E1

PG SHIFTER ADJUSTMENT

Purpose:
Determine the Video Head Switching Point during Playback.

Symptom of Misadjustment:
May cause Head Switching Noise and/or Vertical Jitter.

Test Point : TP3001 (Main C.B.A.)
TP6205 (Main C.B.A.)
Adjustment : R6201 (Main C.B.A.)
Specification : T = 6 +/- 1H (0.38 +/- 0.06msec.)
Mode : SP Playback
Equipment : Oscilloscope,
VHS Alignment Tape (VFMS0003H6)

1. Connect the channel-1 scope probe to TP3001 and the channel-2 scope probe to TP6205. Trigger from channel-2.
2. Playback the VHS alignment tape, and then connect TP6003 to GND to be in PG Shifter Adjustment mode.
3. Adjust the R6201 (PG SHIFTER) so that the leading edge of the head switching pulse is placed 6H +/- 1H (0.38 +/- 0.06msec.) before the start of the vertical sync pulse.
4. Disconnect TP6003 and GND to set the adjustment value of PG Shifter.

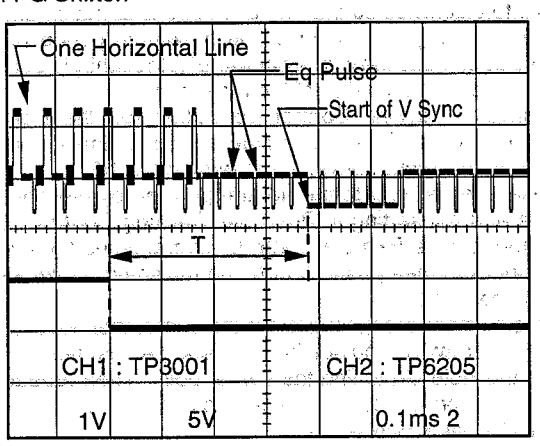


Fig. E2

INPUT LEVEL ADJUSTMENT
(Model : E, F, G)

Purpose:
To fix the output level of Tuner.

Symptom of Misadjustment:
The L and R channels of the STEREO signal will not be separated properly.
The L channel will contain part of the R channel signal or vice versa.

Test Point : Pin 4 of U4901 (Main C.B.A.)
Adjustment : R7007 (Main C.B.A.)
Specification : 245 +/- 8mVrms (693 +/- 23mVp-p)
Input : Antenna Input Terminal
MONO 300Hz +/- 5Hz 100% Modulating
Mode : STOP
Equipment : AC Millivolt Meter,
MTS/SAP Signal Generator

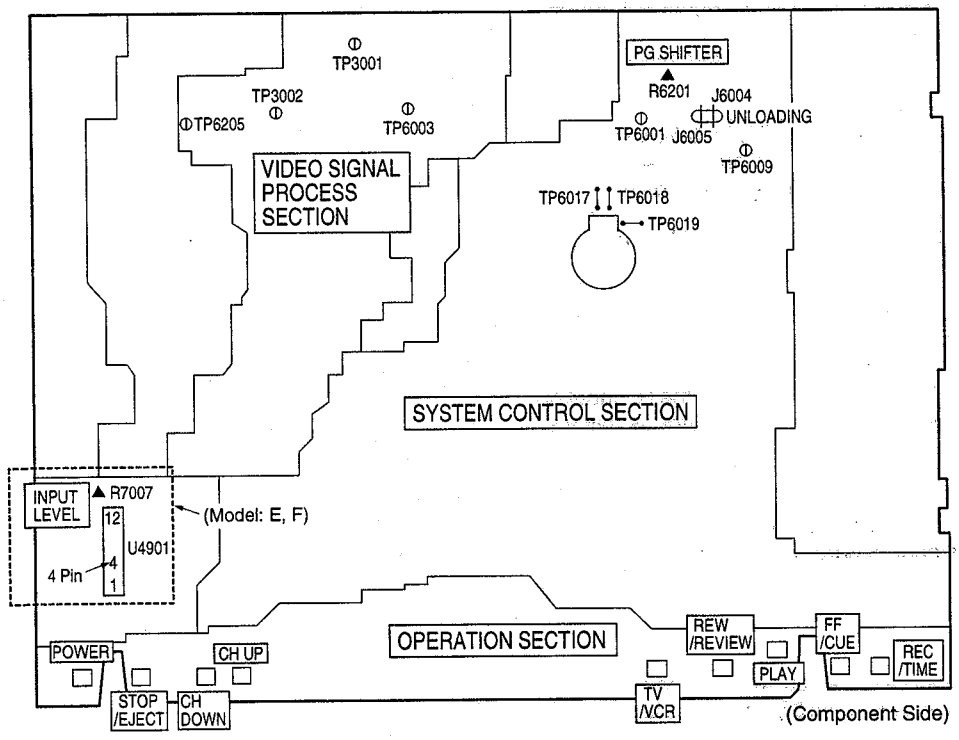
1. Connect the AC Millivolt Meter to pin 4 of U4901.
2. Connect the MTS/SAP Signal Generator to the RF Input on the VCR. Set the MTS/SAP Signal Generator as follows.
   MONO
   300Hz +/- 5Hz
   100% Modulating
3. Tune the VCR to the appropriate channel (same as that provided by the signal generator) and adjust the R7007 ((MPX) INPUT LEVEL) so that the voltage at pin 4 of U4901 is 245 +/- 8mVrms.

Note:
If the generator cannot produce 100% modulation, multiply the specification provided in step 3 by the modulation level used (available).

Example:
30% (Modulation) X 245 +/- 8mVrms
(Specification) = 73.5 +/- 2.4 mVrms (New Specification).

TEST POINTS AND CONTROL LOCATION

Main C.B.A. (Model: A, B, C, E, F)

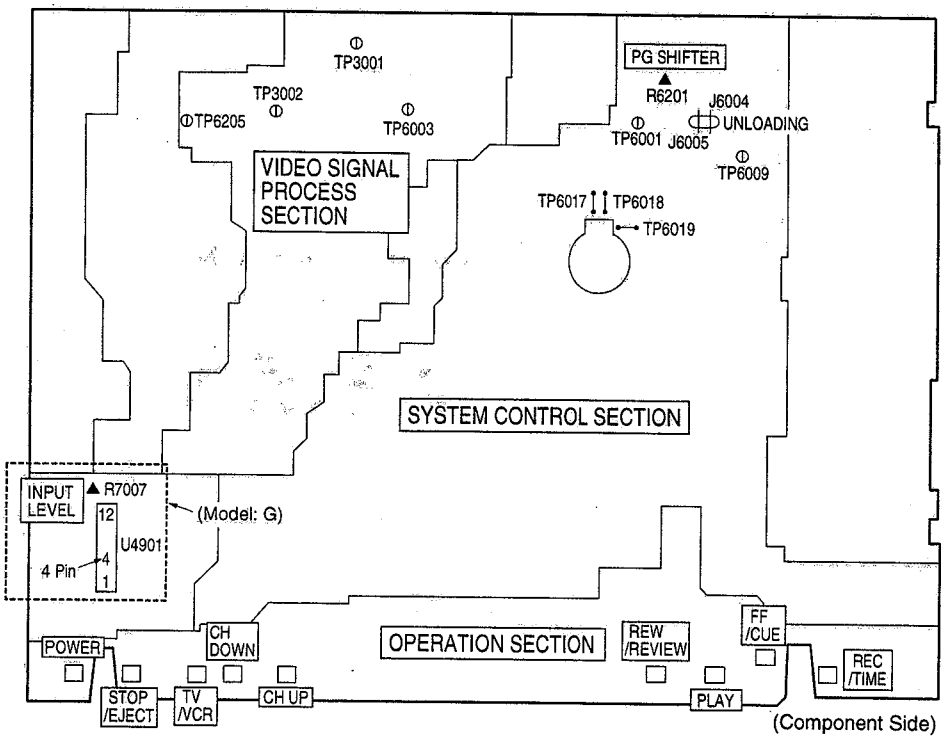


FUNCTION OF IMPORTANT TEST POINTS		
TP3001	Video Signal to Jack	
TP3002	REC/PB Video envelope signal	
TP6001	Service Test Point (inhibit sensors)	
TP6003	defeat Auto tracking function (connect to +5V(TP6009))	
	PG Shifter Adjustment Mode (connect to GND)	
TP6009	+5V	
TP6205	Head SW.	
TP6017	Mode Select SW. Position	Mode Position (A)
TP6018		Mode Position (B)
TP6019		Mode Position (C)

Test Point Information

① Test Point with a jumper wire across a hole in the P.C.B.

Main C.B.A. (Model: D, G)



FUNCTION OF IMPORTANT TEST POINTS		
TP3001	Video Signal to Jack	
TP3002	REC/PB Video envelope signal	
TP6001	Service Test Point (inhibit sensors)	
TP6003	defeat Auto tracking function (connect to +5V(TP6009))	
	PG Shifter Adjustment Mode (connect to GND)	
TP6009	+5V	
TP6205	Head SW.	
TP6017	Mode Select SW. Position	Mode Position (A)
TP6018		Mode Position (B)
TP6019		Mode Position (C)

Test Point Information

① Test Point with a jumper wire across a hole in the P.C.B.

SCHEMATIC DIAGRAMS AND CIRCUIT BOARD LAYOUT

SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES

1. **Important safety notice**
   Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components. Use only the specified parts.
2. Do not use the part number shown on this drawing for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since this drawing was prepared.
3. Use only original replacement parts:
   To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.
4. Parts different in shape or size may be used.
   However, only interchangeable parts will be supplied as service replacement parts.
5. Test point information
   ⓘ :Test point with a jumper wire across a hole in P.C.B.
   ▭→ :Test point with a component lead on the foil side.
   ▨ :Test point with no test pin.
   ● :Test point with a test pin.

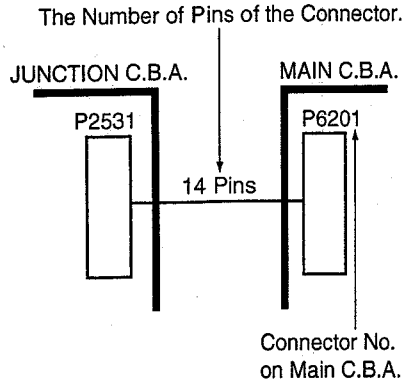
Schematic Diagram Notes

1. Indication for Zener Voltage of Zener Diodes
   The Zener Voltage of Zener Diodes are indicated as such on Schematic Diagrams.

   Example:
   (6.2V).....Zener Voltage

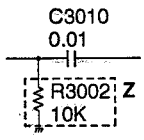
2. How to identify Connectors
   Each connector is labeled with a Connector No. and Pin No. Indicating what it is connected to, in other words, its counter part.
   Use the interconnection schematic diagram to find the connection between associated connectors.

   Example:
   The connections between C.B.A.s are shown below.



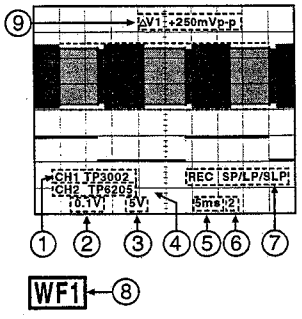
3. Parts enclosed in dashed lines marked "Z" are not used in any models included in this service manual.

Example:



Signal Waveform Note

How to read Signal Waveform



① Connecting Point
② Volts/Div
③ Volts/Div
④ Connecting Point
⑤ Time/Div
⑥ Trigger Channel of the scope
(1:CH1,2:CH2)
⑦ Operation Mode of VCR
⑧ Waveform Point on Schematic
⑨ ΔV1:Peak to Peak

Voltage Chart Note

Voltage Measurement
a. Color bar signal in SP mode.
b. ---:Unmeasurable or not necessary to measure.

Circuit Board Layout Note

Circuit Board Layout shows components installed for various models. For proper parts content for the model you are servicing, please refer to the schematic diagram and parts list.

Comparison chart of models & marks

MODEL	MARK
PV-8400	A
PV-8400-K	B
PV-8401	C
VHQ840	D
PV-8450	E
PV-8450-K	F
VHQ860	G
Not used	Z

Note : Refer to item 3 of Schematic Diagram Notes for mark "Z".

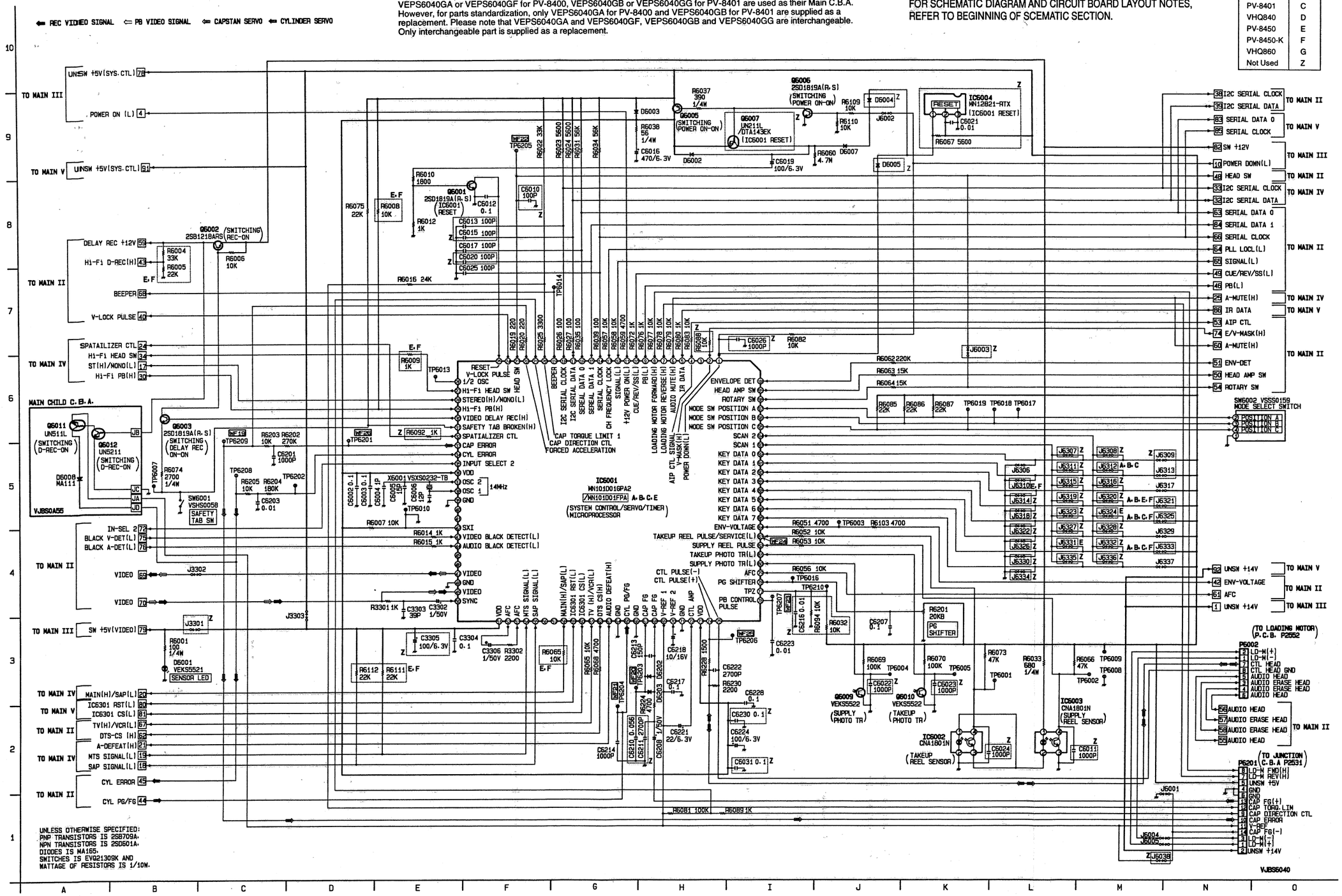
SCHEMATIC DIAGRAMS
MAIN I (SYSTEM CONTROL/SERVO) / MAIN CHILD SCHEMATIC DIAGRAM (A,B,C,E,F)

Main C.B.A. replacement note for models PV-8400 and PV-8401:
VEPS6040GA or VEPS6040GF for PV-8400, VEPS6040GB or VEPS6040GG for PV-8401 are used as their Main C.B.A. However, for parts standardization, only VEPS6040GA for PV-8400 and VEPS6040GB for PV-8401 are supplied as a replacement. Please note that VEPS6040GA and VEPS6040GF, VEPS6040GB and VEPS6040GG are interchangeable. Only interchangeable part is supplied as a replacement.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCEMATIC SECTION.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-8400	A
PV-8400-K	B
PV-8401	C
VHQ840	D
PV-8450	E
PV-8450-K	F
VHQ860	G
Not Used	Z



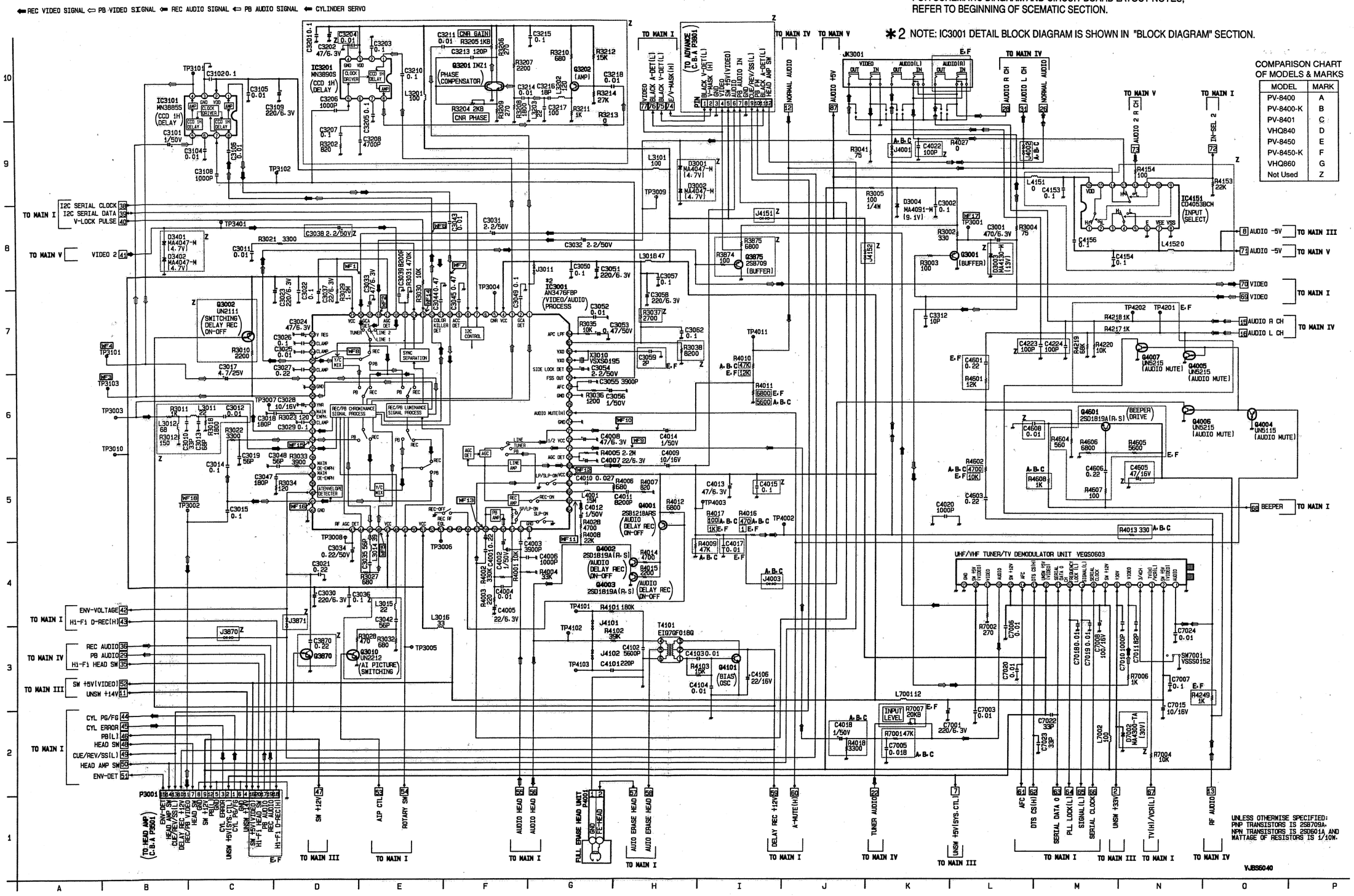
MAIN II (SIGNAL PROCESS/AUDIO) SCHEMATIC DIAGRAM (A,B,C,E,F)

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCEMATIC SECTION.

*2 NOTE: IC3001 DETAIL BLOCK DIAGRAM IS SHOWN IN "BLOCK DIAGRAM" SECTION.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-8400	A
PV-8400-K	B
PV-8401	C
VHQ840	D
PV-8450	E
PV-8450-K	F
VHQ860	G
Not Used	Z



MAIN I (SYSTEM CONTROL/SERVO/OPERATION) / MAIN CHILD SCHEMATIC DIAGRAM (D,G)

IC6001 KEY MATRIX

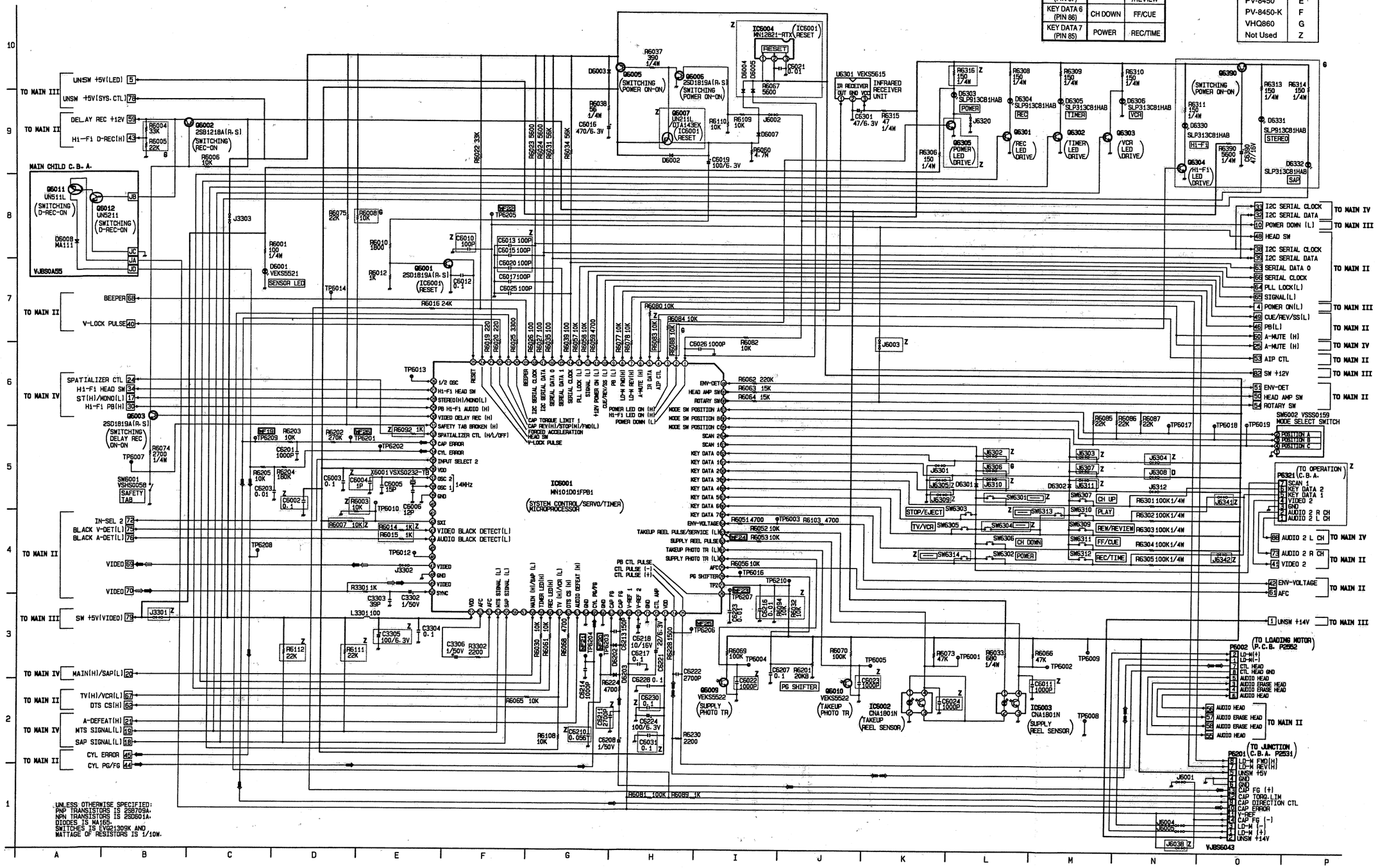
KEY DATA IN	SCAN	
	SCAN 1 (PIN 93)	SCAN 2 (PIN 94)
KEY DATA 3 (PIN 89)	-----	CH UP
KEY DATA 4 (PIN 88)	STOP /EJECT	PLAY
KEY DATA 5 (PIN 87)	TV/VCR	REW /REVIEW
KEY DATA 6 (PIN 86)	CH DOWN	FF/CUE
KEY DATA 7 (PIN 85)	POWER	REC/TIME

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-8400	A
PV-8400-K	B
PV-8401	C
VHQ840	D
PV-8450	E
PV-8450-K	F
VHQ860	G
Not Used	Z

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCEMATIC SECTION.

⇐ REC VIDEO SIGNAL ⇦ PB VIDEO SIGNAL ⇐ CAPSTAN SERVO ⇐ CYLINDER SERVO



UNLESS OTHERWISE SPECIFIED:
PNP TRANSISTORS IS 2SB709A.
NPN TRANSISTORS IS 2SD601A.
DIODES IS MA165.
SWITCHES IS EVQ21309K AND
WATTAGE OF RESISTORS IS 1/10W.

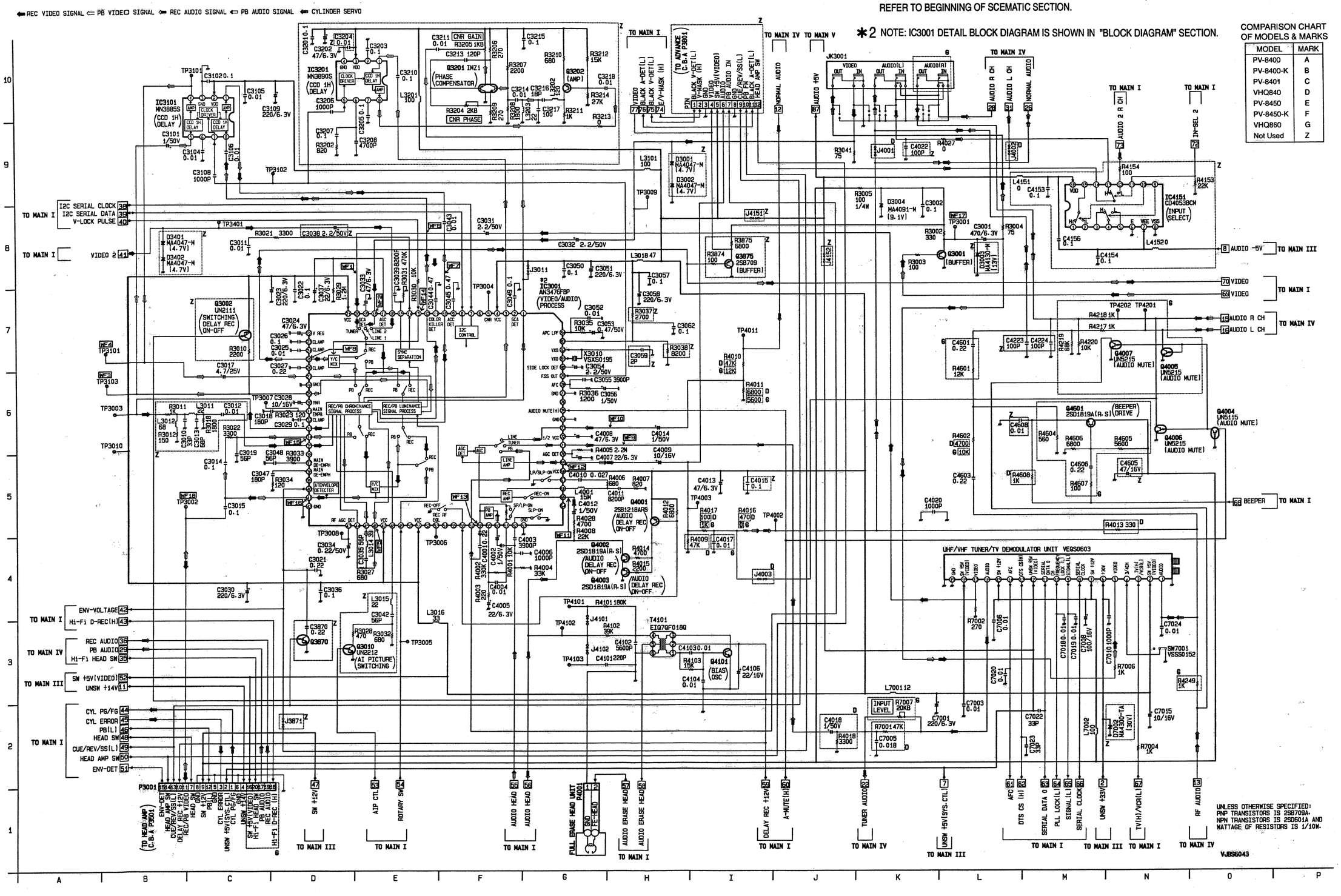
MAIN II (SIGNAL PROCESS/AUDIO) SCHEMATIC DIAGRAM (D,G)

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCEMATIC SECTION.

*2 NOTE: IC3001 DETAIL BLOCK DIAGRAM IS SHOWN IN "BLOCK DIAGRAM" SECTION.

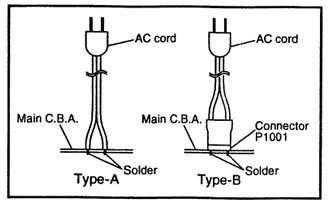
COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-8400	A
PV-8400-K	B
PV-8401	C
VHQ840	D
PV-8450	E
PV-8450-K	F
VHQ860	G
Not Used	Z



MAIN III (POWER SUPPLY) SCHEMATIC DIAGRAM

*1 AC cord replacement note

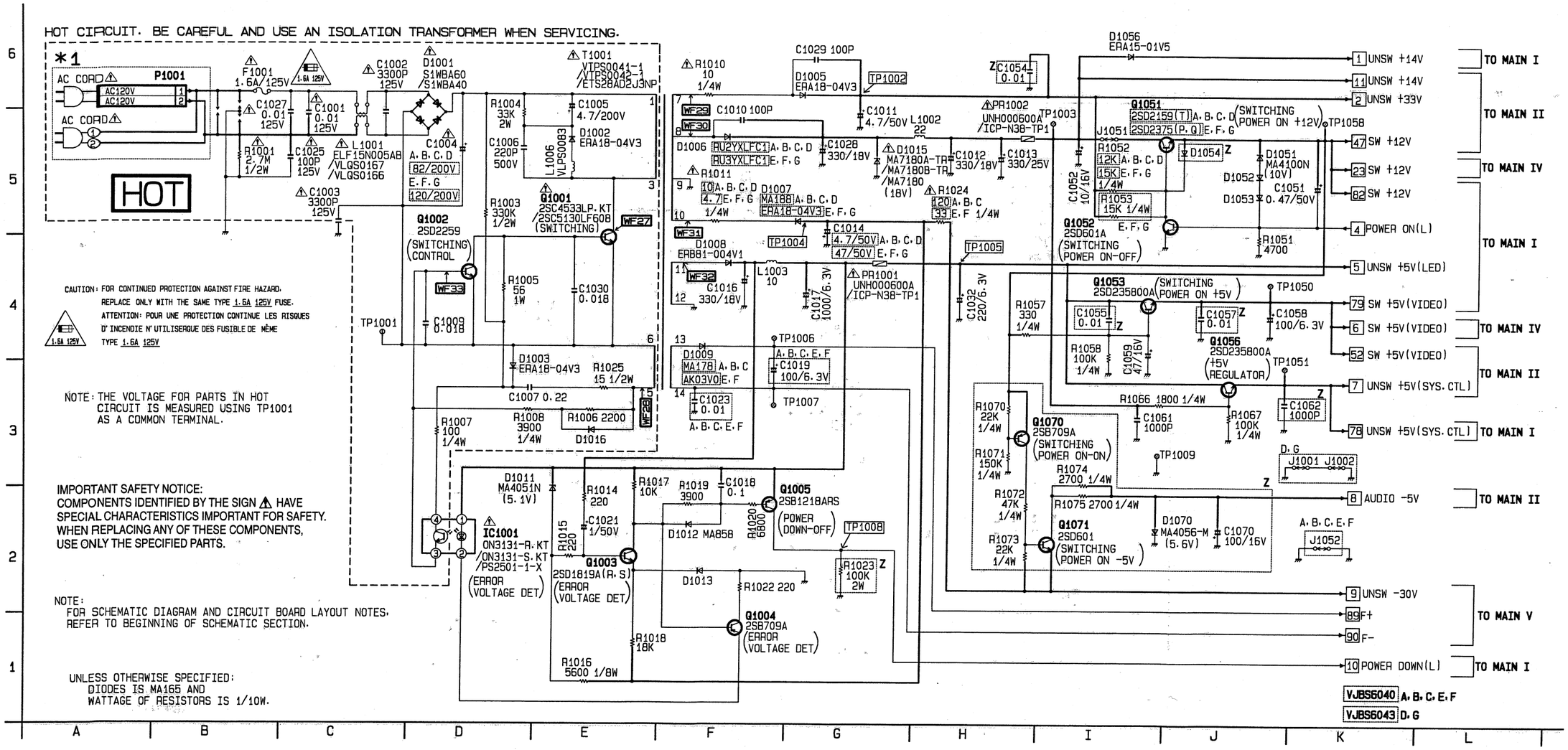


1) PV-8400-K,PV-8450,PV-8450-K,VHQ840,VHQ860
AC CORD IS CONNECTED TO CONNECTOR P1001 FOR PRODUCTS USING TYPE-B.

2) PV-8400,PV-8401
Either Type-A or B is used as a AC cord for this model. However, for parts standardization and interchangeability, Type-B will be supplied with Connecter P1001 as a kit (Part No.: VJAS0195-FS) for replacement.
When replacing AC cord on products using Type-A, connect Connector P1001 to Main C.B.A. with solder and connect AC cord to Connector P1001.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-8400	A
PV-8400-K	B
PV-8401	C
VHQ840	D
PV-8450	E
PV-8450-K	F
VHQ860	G
Not Used	Z

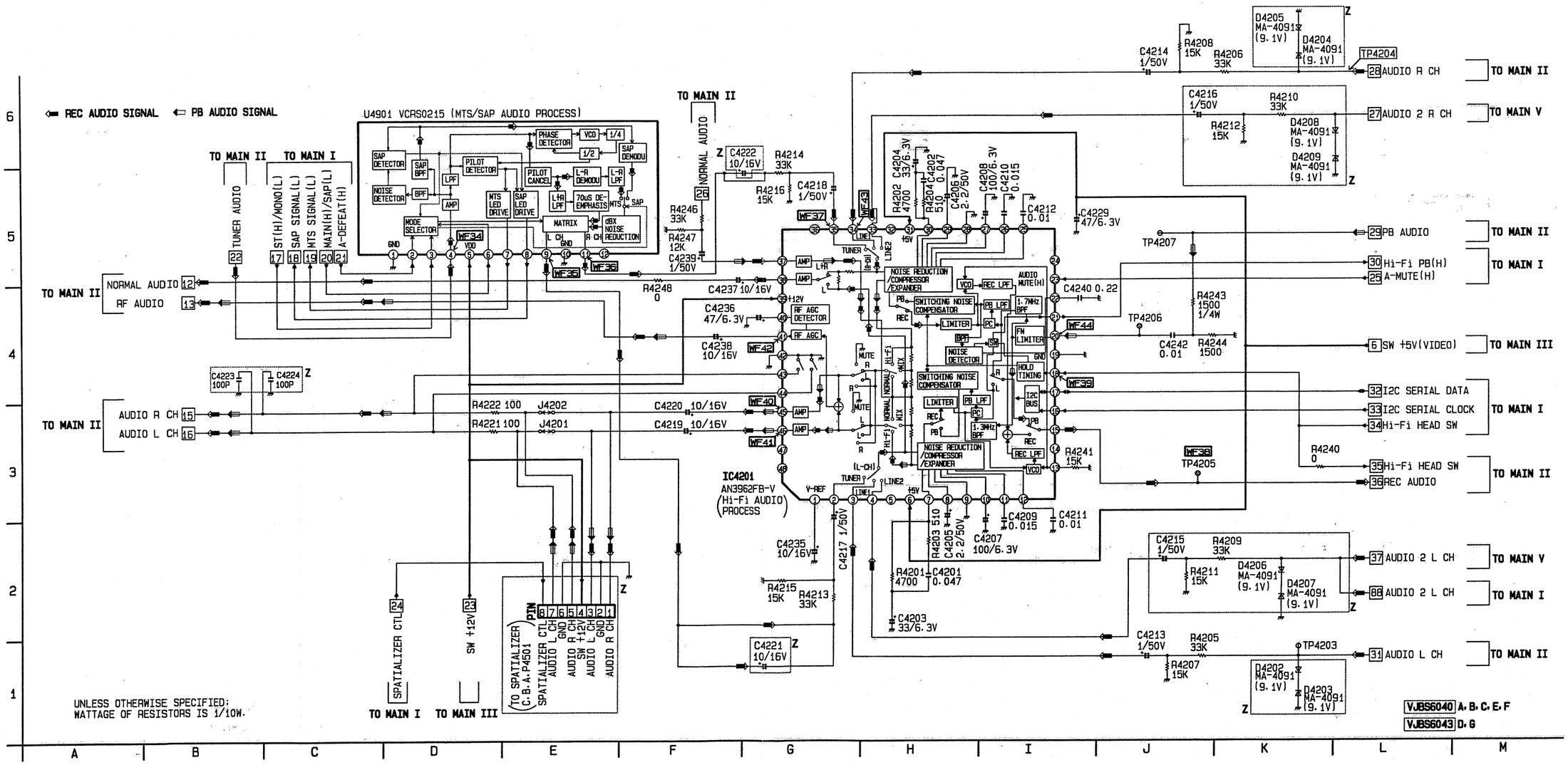


MAIN IV (Hi-Fi) SCHEMATIC DIAGRAM (E,F,G)

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-8400	A
PV-8400-K	B
PV-8401	C
VHQ840	D
PV-8450	E
PV-8450-K	F
VHQ860	G
Not Used	Z

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCEMATIC SECTION.



MAIN V (OPERATION) SCHEMATIC DIAGRAM (A,B,C,E,F)

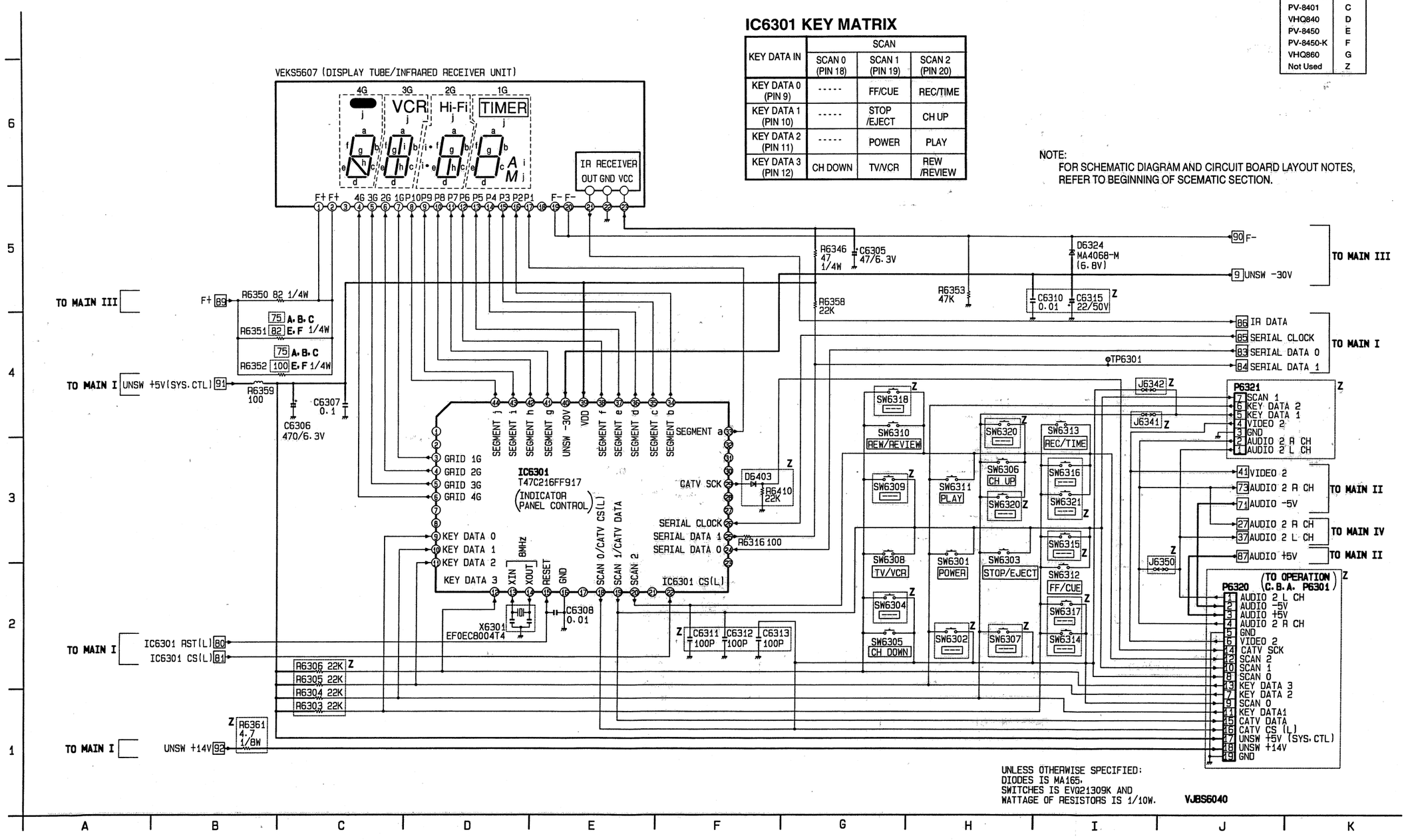
COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-8400	A
PV-8400-K	B
PV-8401	C
VHQ840	D
PV-8450	E
PV-8450-K	F
VHQ860	G
Not Used	Z

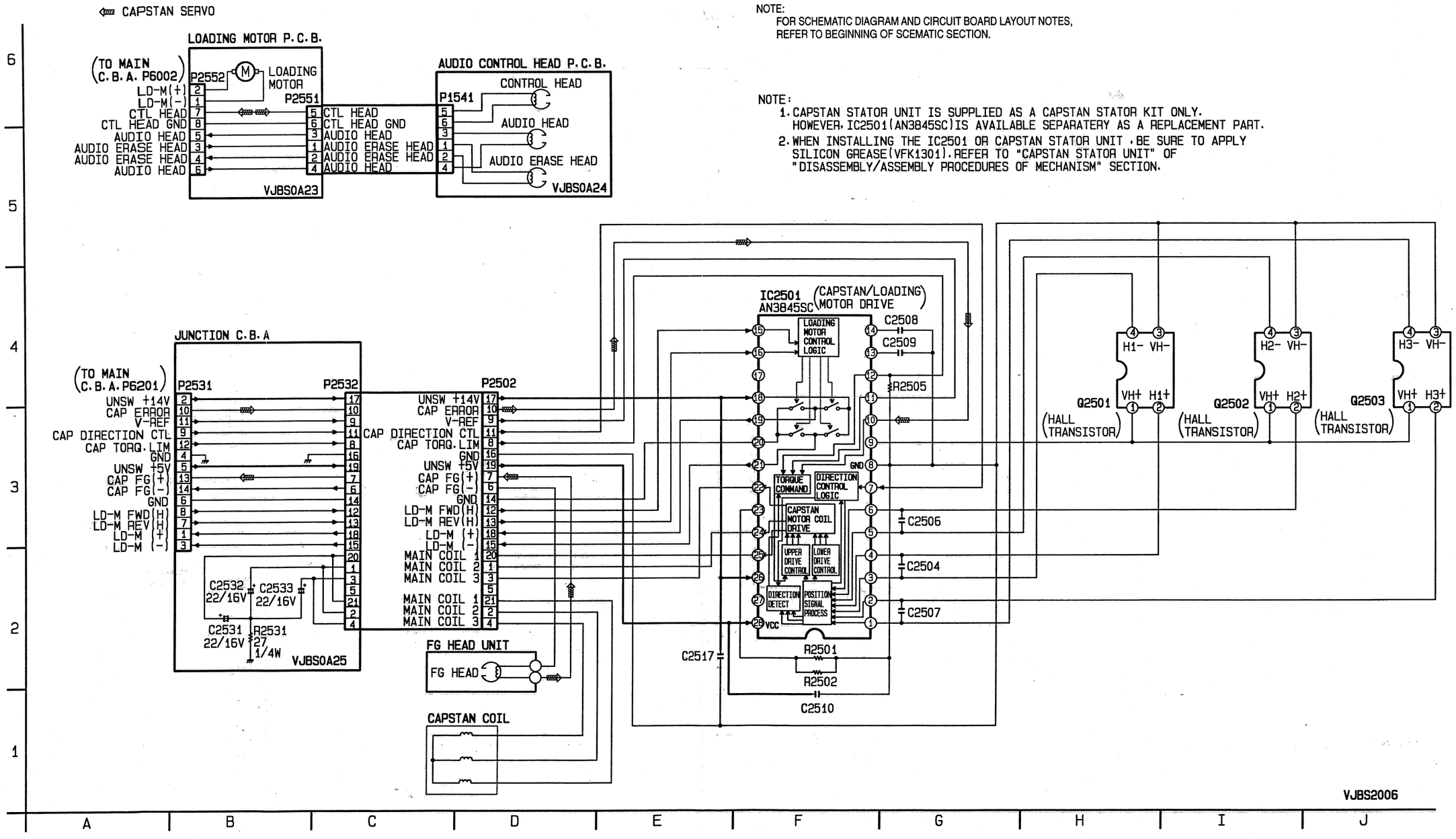
IC6301 KEY MATRIX

KEY DATA IN	SCAN		
	SCAN 0 (PIN 18)	SCAN 1 (PIN 19)	SCAN 2 (PIN 20)
KEY DATA 0 (PIN 9)	-----	FF/CUE	REC/TIME
KEY DATA 1 (PIN 10)	-----	STOP /EJECT	CH UP
KEY DATA 2 (PIN 11)	-----	POWER	PLAY
KEY DATA 3 (PIN 12)	CH DOWN	TV/VCR	REW /REVIEW

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCEMATIC SECTION.



CAPSTAN STATOR / JUNCTION / LOADING MOTOR / AUDIO CONTROL HEAD SCHEMATIC DIAGRAM



NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCEMATIC SECTION.

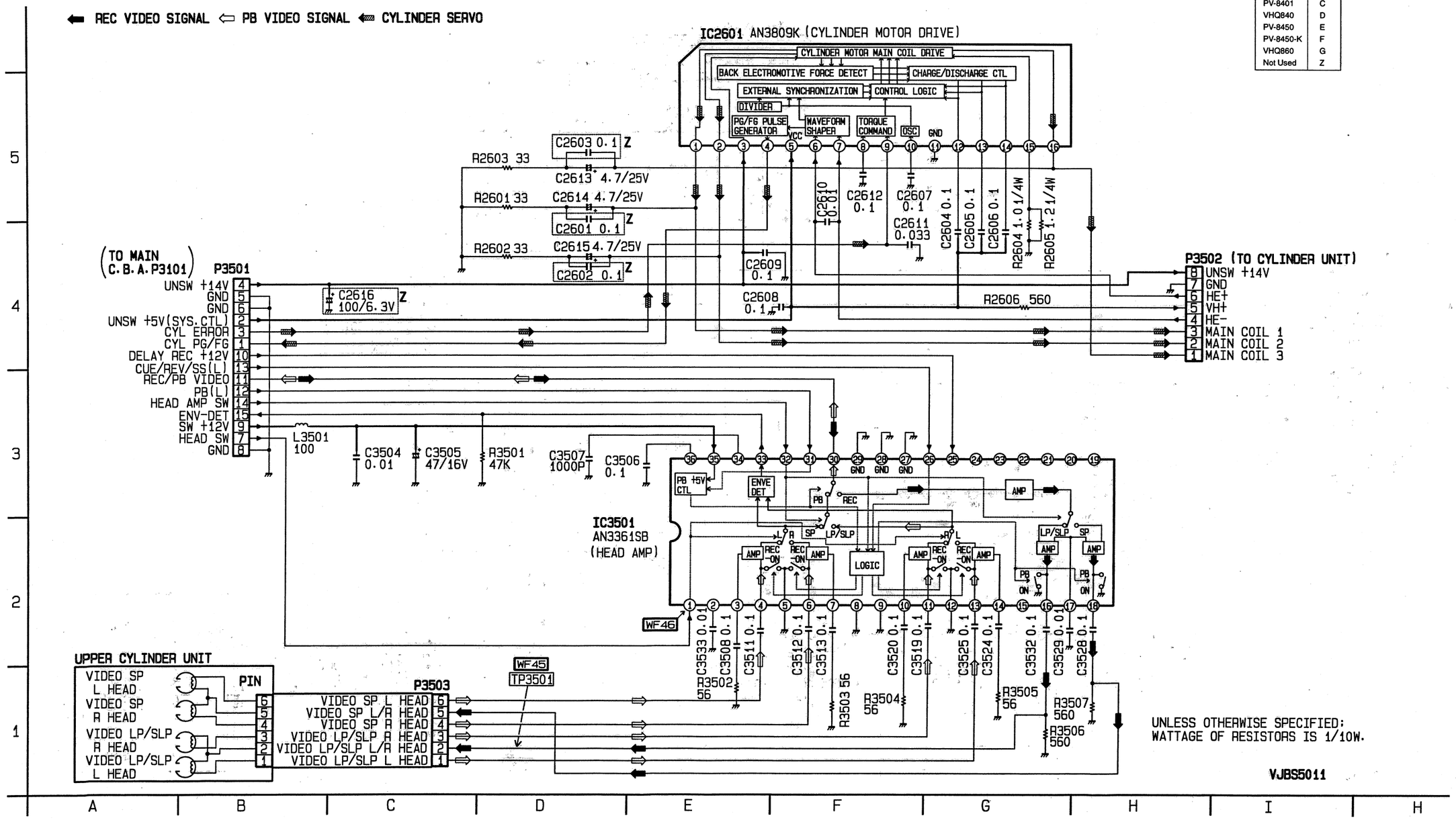
NOTE:
1. CAPSTAN STATOR UNIT IS SUPPLIED AS A CAPSTAN STATOR KIT ONLY. HOWEVER, IC2501(AN3845SC)IS AVAILABLE SEPARATERY AS A REPLACEMENT PART.
2. WHEN INSTALLING THE IC2501 OR CAPSTAN STATOR UNIT , BE SURE TO APPLY SILICON GREASE(VFK1301). REFER TO "CAPSTAN STATOR UNIT" OF "DISASSEMBLY/ASSEMBLY PROCEDURES OF MECHANISM" SECTION.

HEAD AMP SCHEMATIC DIAGRAM (A,B,C,D)

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCEMATIC SECTION.

COMPARISON CHART
OF MODELS & MARKS

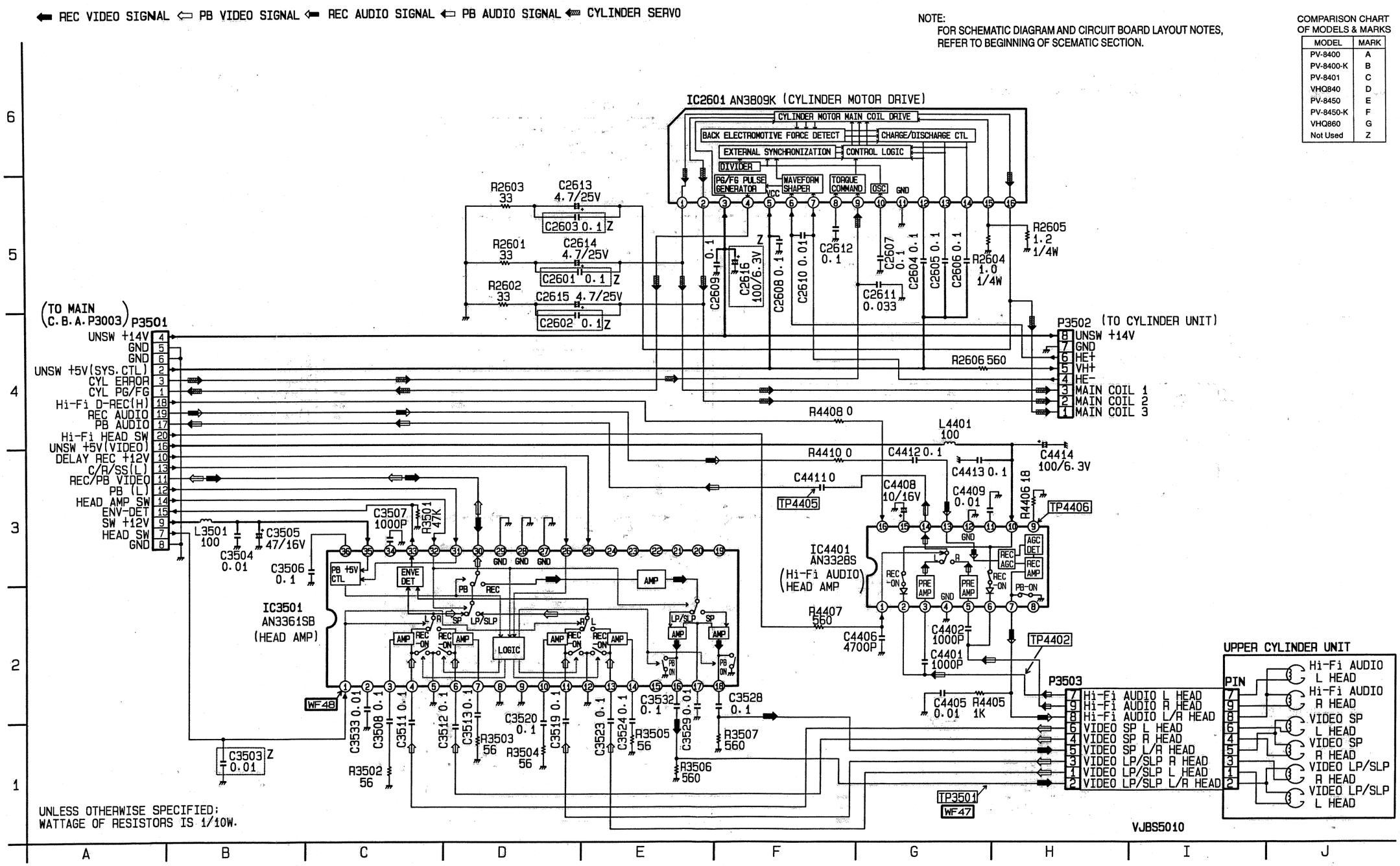
MODEL	MARK
PV-8400	A
PV-8400-K	B
PV-8401	C
VHQ840	D
PV-8450	E
PV-8450-K	F
VHQ860	G
Not Used	Z



UNLESS OTHERWISE SPECIFIED:
WATTAGE OF RESISTORS IS 1/10W.

VJBS5011

Hi-Fi AUDIO/VIDEO HEAD AMP SCHEMATIC DIAGRAM (E,F,G)



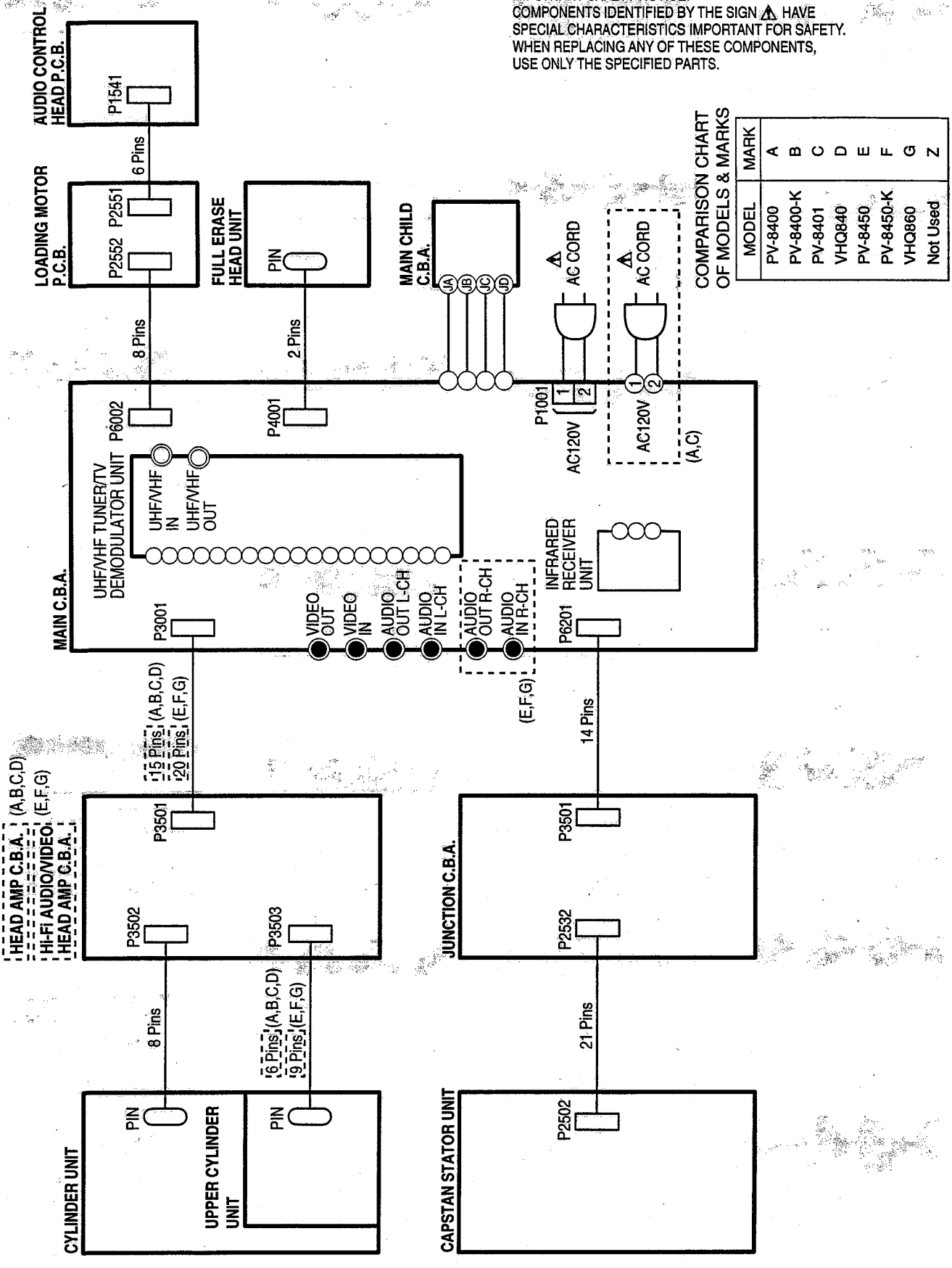
INTERCONNECTION SCHEMATIC DIAGRAM

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCEMATIC SECTION.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

COMPARISON CHART OF MODELS & MARKS

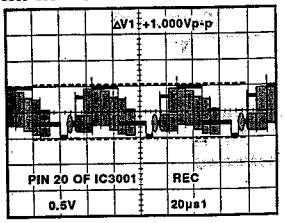
MODEL	MARK
PV-8400	A
PV-8400-K	B
PV-8401	C
VHQ840	D
PV-8450	E
PV-8450-K	F
VHQ860	G
Not Used	Z



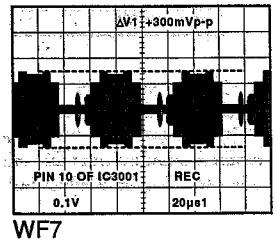
SIGNAL WAVEFORM

MAIN C.B.A.

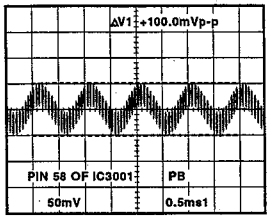
NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCEMATIC SECTION.



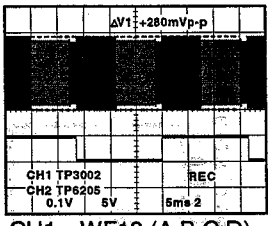
WF1



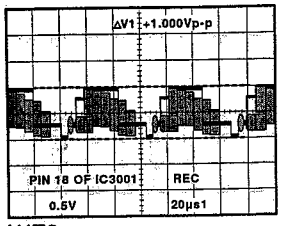
WF7



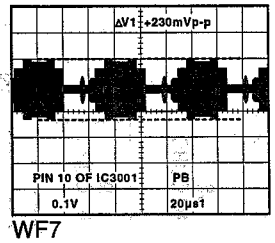
WF13



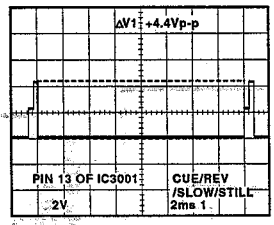
CH1 WF18 (A,B,C,D)
CH2 WF22 (A,B,C,D)



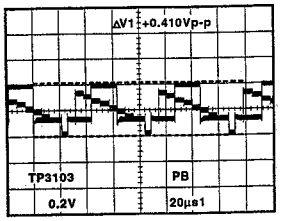
WF2



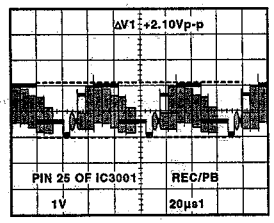
WF7



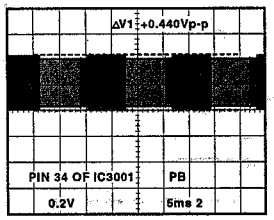
WF14



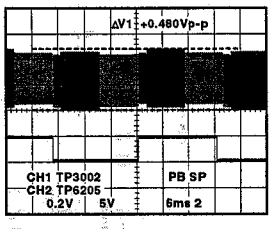
WF3



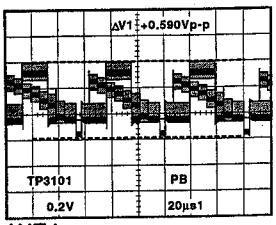
WF8



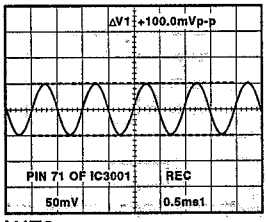
WF15



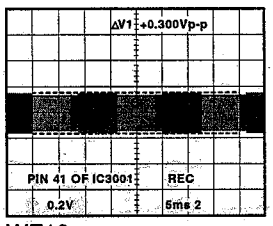
CH1 WF18 (A,B,C,D)
CH2 WF22 (A,B,C,D)



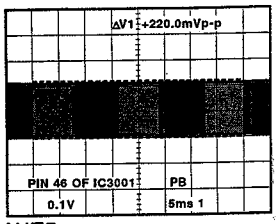
WF4



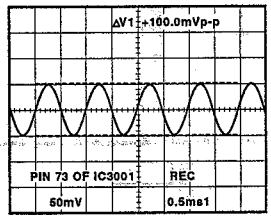
WF9



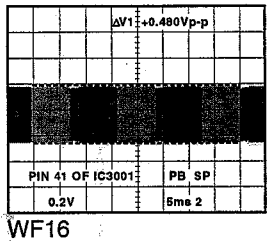
WF16



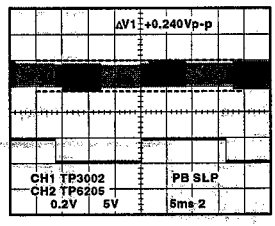
WF5



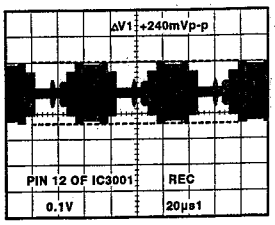
WF10



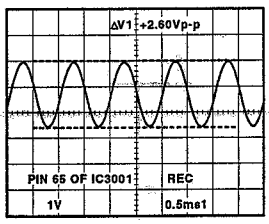
WF16



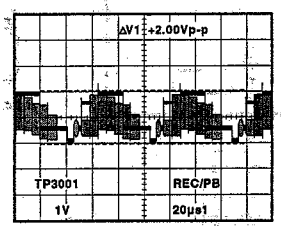
CH1 WF18 (A,B,C,D)
CH2 WF22 (A,B,C,D)



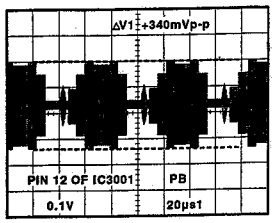
WF6



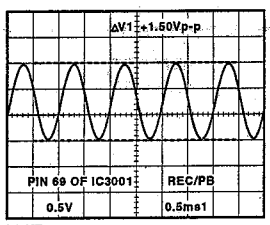
WF11



WF17



WF6

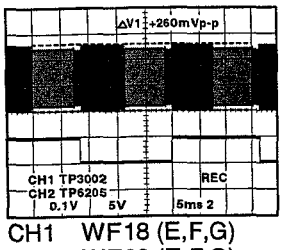


WF12

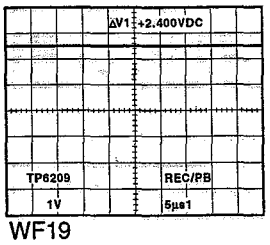
COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-8400	A
PV-8400-K	B
PV-8401	C
VHQ840	D
PV-8450	E
PV-8450-K	F
VHQ860	G
Not Used	Z

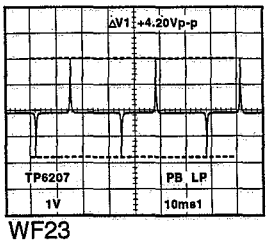
NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCEMATIC SECTION.



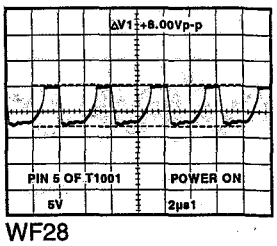
CH1 WF18 (E,F,G)
CH2 WF22 (E,F,G)



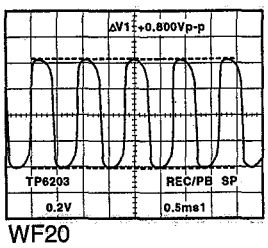
WF19



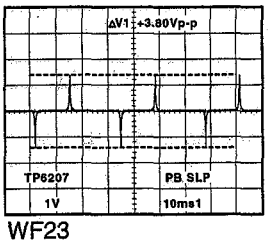
WF23



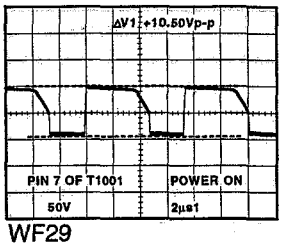
WF28



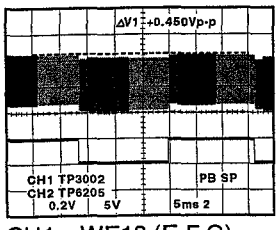
WF20



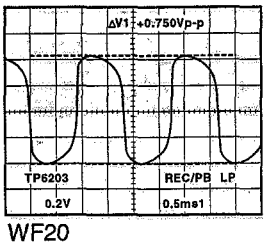
WF23



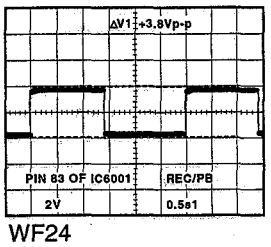
WF29



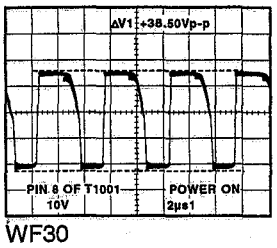
CH1 WF18 (E,F,G)
CH2 WF22 (E,F,G)



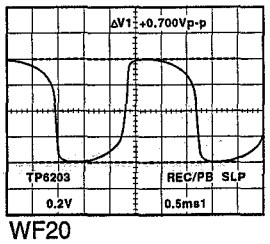
WF20



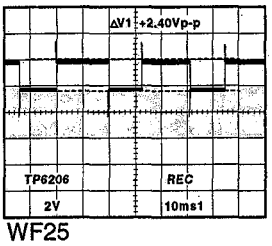
WF24



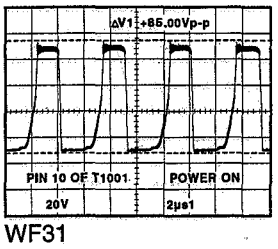
WF30



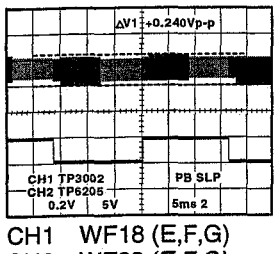
WF20



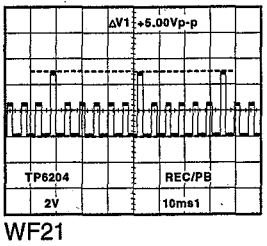
WF25



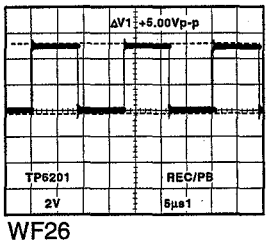
WF31



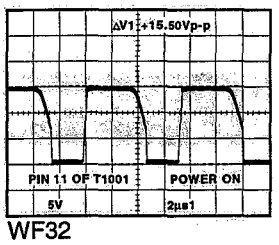
CH1 WF18 (E,F,G)
CH2 WF22 (E,F,G)



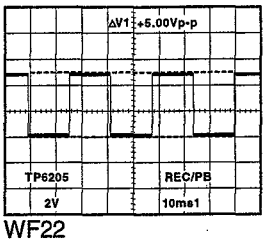
WF21



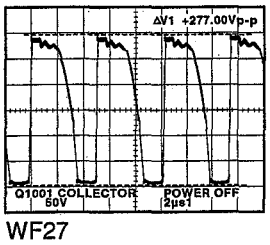
WF26



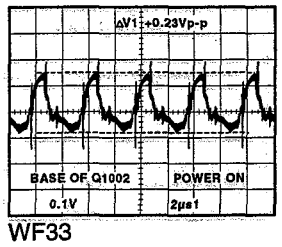
WF32



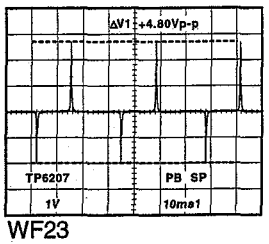
WF22



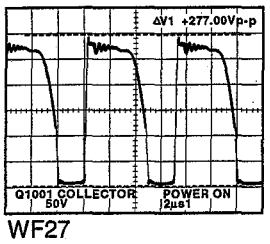
WF27



WF33



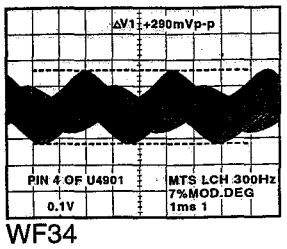
WF23



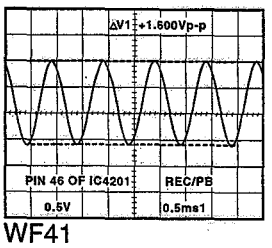
WF27

COMPARISON CHART OF MODELS & MARKS

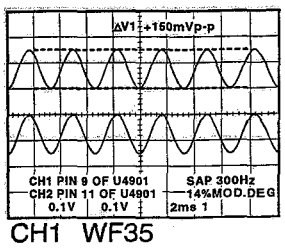
MODEL	MARK
PV-8400	A
PV-8400-K	B
PV-8401	C
VHQ840	D
PV-8450	E
PV-8450-K	F
VHQ860	G
Not Used	Z



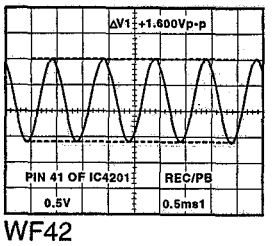
WF34



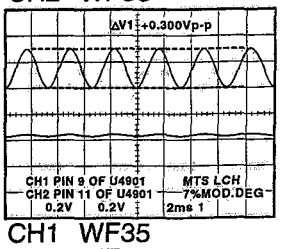
WF41



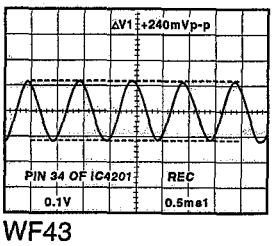
CH1 WF35
CH2 WF36



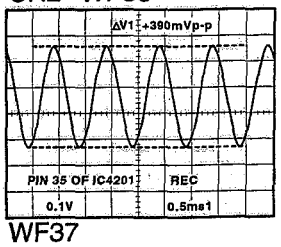
WF42



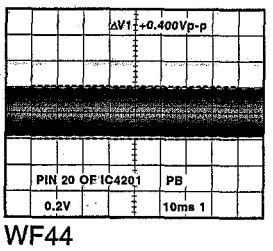
CH1 WF35
CH2 WF36



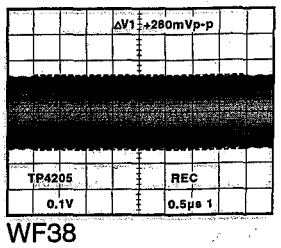
WF43



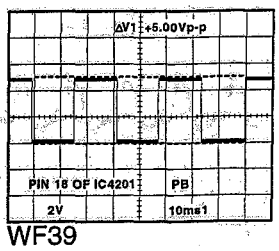
WF37



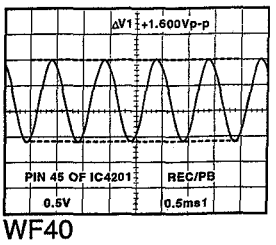
WF44



WF38

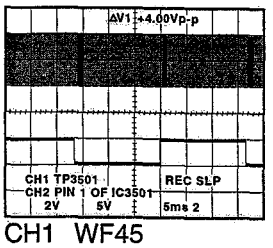


WF39



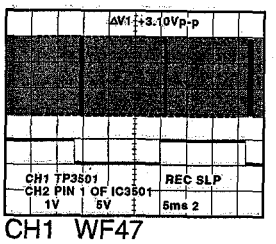
WF40

HEAD AMP C.B.A.



CH1 WF45
CH2 WF46

Hi-Fi AUDIO/VIDEO HEAD AMP C.B.A.



CH1 WF47
CH2 WF48

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCEMATIC SECTION.

VOLTAGE CHART

MAIN / MAIN CHILD CIRCUIT

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCEMATIC SECTION.

MODE / PIN NO.	REC	PLAY
IC1001		
1	5.1	5.1
2	4.4	4.4
3	-54.0	-54.0
4	-53.8	-53.8
IC3001		
1	5.1	5.1
2	3.4	3.4
3	2.1	2.1
4	5.1	5.1
5	4.3	4.3
6	---	---
7	5.2	5.2
8	5.2	5.2
9	2.2	2.2
10	2.8	2.8
11	0.8	0.8
12	2.8	2.8
13	0.4	0.4
14	0.5	0.5
15	0	0.9
16	3.1	3.8
17	2.4	1.8
18	3.1	5.7
19	2.6	2.6
20	3.1	4.0
21	5.1	5.1
22	0	2.0
23	2.6	2.4
24	2.6	2.4
25	2.0	2.0
26	2.6	2.5
27	2.0	2.0
28	0	0
29	1.9	1.8
30	1.9	1.6
31	2.0	1.2
32	2.4	2.4
33	2.7	2.7
34	3.0	2.8
35	2.6	2.6
36	2.5	2.5
37	0	1.5
38	4.4	2.3
39	0	1.5
40	3.8	2.4
41	0	0
42	0	0
43	3.4	3.3
44	2.6	2.6
45	2.6	2.6
46	2.6	2.6
47	5.1	5.1
48	1.3	1.3
49	2.7	2.7
50	3.8	3.1
51	5.1	5.1
52	2.5	2.5
53	2.5	2.5
54	4.1	0.1
55	0	0
56	0.1	4.4
57	0	2.6
58	2.6	2.6
59	2.6	2.6
60	2.6	2.6
61	2.6	2.6
62	0	0
63	0	0
64	1.6	1.8
65	2.6	2.6
66	0	2.6
67	2.6	0
68	5.2	0
69	2.6	2.6
70	0.3	0
71	2.6	2.6
72	2.6	0
73	2.6	2.6
74	0	0
75	0	0
76	3.3	0
77	0	0
78	2.1	0
79	3.0	0
80	0	2.0
81	---	---
82	---	---
83	2.6	0
84	2.5	0
IC3101		
1	3.4	3.4
2	-2.5	-2.5
3	0	0
4	2.5	2.5
5	2.5	2.5
6	-2.7	-2.7
7	2.1	2.1
8	3.0	3.0
IC4201		
1	2.6	2.6
2	2.6	2.6
3	2.6	2.6
4	2.6	2.6
5	---	---
6	5.1	5.1
7	2.6	2.6
8	2.6	2.6
9	0	0
10	2.6	2.6
11	2.6	2.6
12	2.6	2.6
13	2.6	2.6
14	---	---
15	2.6	2.6
16	4.2	4.2
17	4.0	4.0
18	0	0
19	2.6	2.6
20	2.6	2.6
21	0	0
22	0	0
23	0	0
24	---	---
25	0	2.0
26	2.6	2.6
27	2.6	2.6
28	0	0
29	1.6	1.6
30	2.7	2.7
31	0.1	0
32	---	---
33	0	2.6
34	2.6	2.6
35	2.6	2.6
36	---	---
37	2.6	2.6
38	2.6	2.6
39	11.3	11.3
40	0.5	0.5
41	6.2	6.2
42	0	0
43	0	0
44	0	0
45	6.2	6.2
46	6.2	6.2
47	---	---
48	---	---
IC6001		
1	5.2	5.2
2	0	0
3	0	0
4	---	---
5	5.0	5.0
6	0	0
7	0	0
8	0	0
9	5.0	0
10	0.5	5.0
11	0	0
12	5.2	5.2
13	0	0
14	4.9	4.9
15	---	---
16	2.2	0.6
17	5.2	5.2
18	5.2	5.2
19	---	---
20	0.2	4.9
21	0	0
22	2.2	2.3
23	2.5	2.5
24	0	0
25	5.0	5.0
26	2.5	2.5
27	0	2.5
28	0	0
29	4.7	4.7
30	5.0	0
31	0.1	0
32	---	---
33	2.2	2.0
34	2.4	2.4
35	---	---
36	5.1	5.1
37	2.5	---
38	2.5	---
39	0	0
40	---	---
41	---	---
42	0	0
43	---	---
44	---	---
45	---	---
46	1.0	1.0
47	1.9	1.9
48	0	0
49	0	1.9
50	2.6	2.6
51	5.1	5.1
52	2.5	2.5
53	2.6	2.6
54	5.2	5.2
55	5.2	5.2
56	---	---
57	---	---
58	4.9	4.9
59	5.0	5.0
60	1.7	1.7
61	0	0
62	0.4	0.4
63	5.0	5.0
64	0	0
65	1.0	1.0
66	0	0
67	2.5	2.5
68	2.5	2.5
69	2.5	2.5
70	2.5	2.5
71	0	0
72	2.5	2.5
73	5.0	5.0
74	2.9	---
75	2.1	---
76	2.5	2.5
77	1.9	2.2
78	3.5	3.5
79	5.0	5.0
80	4.7	4.6
81	5.0	5.0
82	5.1	5.1
83	5.1	1.2
84	3.8	2.8
85	5.2	5.2
86	4.8	4.8
87	5.2	5.2
88	1.8	1.9
89	5.2	5.2
90	5.2	5.2
91	0	0
92	0	0
93	4.7	4.7
94	1.9	1.9
95	0	0
96	5.2	5.2
97	0	0
98	2.5	2.5
99	5.0	5.0
100	0.2	0
IC6002		
1	1.2	1.2
2	0	0
3	1.2	1.2
4	---	---
IC6003		
1	2.4	2.4
2	1.2	1.2
3	0	0
4	---	---
IC6301		
1	---	---
2	---	---
3	-26.5	-26.5
4	-26.5	-26.5
5	-26.5	-26.5
6	-26.5	-26.5
7	---	---
8	---	---
9	5.2	5.2
10	5.2	5.2
11	5.2	5.2
12	5.2	5.2
13	2.3	2.3
14	2.6	2.5
15	5.1	5.1
16	0	0
17	---	---
18	2.0	1.9
19	2.0	1.8
20	2.1	2.1
21	---	---
22	1.3	1.3
23	---	---
24	0	4.7
25	5.1	5.2
26	4.7	4.7
27	---	---
28	---	---
29	-31.0	5.0
30	---	---
31	---	---
32	---	---
33	-18.0	-21.9
34	-26.3	-18.0
35	-30.5	-21.7

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCEMATIC

MODE / PIN NO.	REC	PLAY
36	-21.8	-21.6
37	-17.5	-17.5
38	-17.5	-13.5
39	5.2	5.2
40	-31.0	-31.0
41	-21.7	-17.2
42	-26.1	-30.5
43	-26.0	-30.5
44	-21.7	-30.5
Q1001		
E	0	0
C	133.5	133.5
B	0.3	0.3
Q1002		
E	0	0
C	0.3	0.3
B	0.6	0.6
Q1003		
E	-0.6	-0.6
C	4.1	4.1
B	0	0
Q1004		
E	4.4	4.4
C	0.1	0.1
B	4.1	4.1
Q1005		
E	5.1	5.1
C	5.2	5.2
B	4.7	4.7
Q1051		
E	12.0	12.0
C	13.2	13.2
B	11.6	12.6
Q1052		
E	0	0
C	11.6	12.6
B	0.7	0.7
Q1053		
E	5.3	5.3
C	5.1	5.1
B	6.0	6.0
Q1056		
E	5.3	5.3
C	5.1	5.1
B	6.0	6.0
Q3001		
E	2.8	2.8
C	0	0
B	2.0	2.0
Q4001		
E	5.1	5.1
C	-18.7	5.1
B	5.1	4.4
Q4002		
E	-13.6	0
C	0	0
B	-19.1	0.8
Q4003		

MODE / PIN NO.	REC	PLAY
E	-13.6	0
C	0	0
B	-18.6	0.8
Q4004		
E	0	0
C	2.5	2.5
B	0	0
Q4005		
E	0	0
C	0	0
B	2.5	2.5
Q4006		
E	0	0
C	0	0
B	2.5	2.5
Q4007		
E	0	0
C	6.2	6.2
B	2.5	2.5
Q4101		
E	0	0
C	11.3	0.5
B	0.2	0.5
Q4601		
E	5.8	5.8
C	12.0	12.0
B	6.4	6.4
Q6001		
E	0	0
C	5.0	5.0
B	0	0
Q6002		
E	12.1	12.1
C	11.8	0.5
B	12.1	11.2
Q6003		
E	0.4	0
C	11.2	12.1
B	5.0	0
Q6005		
E	5.1	5.1
C	5.1	5.1
B	4.4	4.4
Q6006		
E	0	0
C	0	0
B	0.8	0.8
Q6009		
E	0	0
C	5.1	5.1
B	---	---
Q6010		
E	0	0
C	5.1	5.1
B	---	---
Q6011		
E	2.5	2.5
C	1.8	0
B	0.7	0

MODE / PIN NO.	REC	PLAY
Q6012		
E	0	0
C	0.7	0
B	11.8	0.5
Q6301		
E	0	0
C	5.1	0
B	0	0
Q6302		
E	0	0
C	5.1	5.1
B	0	0
Q6303		
E	0	0
C	12.0	12.0
B	0	0
Q6304		
E	0	0
C	0	0
B	5.1	5.1
Q6390		
E	5.1	5.1
C	5.1	5.1
B	0	0
TP1001	0	0
TP1002	36.5	36.5
TP1003	13.5	13.5
TP1004	-30.0	-30.0
TP1005	0	0
TP1006	-18.9	-18.9
TP1007	-24.2	-24.2
TP1008	5.1	5.1
TP1009	0	0
TP1050	5.3	5.3
TP1051	5.3	5.3
TP1058	12.0	12.0
TP3001	2.8	2.8
TP3002	2.7	2.3
TP3003	2.7	2.7
TP3004	4.3	4.3
TP3005	2.6	2.6
TP3006	2.5	2.5
TP3007	2.1	2.1
TP3008	3.4	3.4
TP3009	0	0
TP3010	5.1	5.1
TP3101	3.2	3.2
TP3102	3.0	0
TP3103	1.8	1.8
TP4002	0	0
TP4003	0	0
TP4011	0	0
TP4101	0	0
TP4102	0	0
TP4103	0	0
TP4201	0	0
TP4202	0	0
TP4203	0	0

MODE / PIN NO.	REC	PLAY
TP4204	0	0
TP4205	2.7	2.7
TP4206	2.7	2.7
TP4207	0	0
TP6001	---	---
TP6002	5.2	5.2
TP6003	3.4	2.3
TP6004	5.1	5.1
TP6005	5.1	5.1
TP6007	0	0
TP6008	0	0
TP6009	5.2	5.2
TP6013	2.5	2.5
TP6016	3.5	3.5
TP6017	0	0
TP6018	5.2	5.2
TP6019	0	0
TP6201	2.2	2.2
TP6202	2.4	2.4
TP6203	2.5	2.5
TP6204	1.0	1.0
TP6205	2.6	2.6
TP6207	2.5	2.5
TP6208	2.6	2.6
TP6209	---	---
TP6210	1.9	2.2
TP6301	5.2	5.2

CAPSTAN STATOR CIRCUIT

MODE / PIN NO.	REC	PLAY
IC2501		
1	13.0	13.0
2	13.0	13.0
3	13.5	13.5
4	1.2	1.2
5	1.2	1.2
6	1.2	1.2
7	0.1	2.7
8	0	0
9	2.6	2.6
10	1.5	1.5
11	2.6	2.6
12	0.5	0.5
13	3.9	3.9
14	3.9	3.9
15	0	0
16	0	0
17	---	---
18	13.5	13.5
19	2.8	2.8
20	0	0.7
21	2.8	2.8
22	0	0.7
23	0.2	1.4
24	0	0
25	0	0
26	13.5	13.5
27	---	---

HEAD AMP CIRCUIT

MODE / PIN NO.	REC	PLAY
IC2601		
1	13.0	13.0
2	13.0	13.0
3	13.5	13.5
4	1.2	1.2
5	5.1	5.1
6	0.9	0.9
7	1.0	1.0
8	0.7	0.7
9	2.6	2.6
10	1.5	1.5
11	0	0
12	3.9	3.9
13	3.9	3.9
14	3.9	3.9
15	0.1	0.1
16	13.2	13.2
IC3501		
1	2.6	2.6
2	0	0
3	0.3	1.4
4	0	0.7
5	0	0
6	0	0.7
7	0.2	1.4
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	---	---
14	6.3	0
15	6.3	0
16	6.3	0
17	6.3	0
18	6.3	0
19	---	---
20	---	---
21	---	---
22	0	0
23	0	0
24	0	0
25	11.9	0.5
26	0	0
27	0	0
28	0	0
29	0	0
30	2.7	2.3
31	5.1	0.1
32	0	0
33	0	0
34	0	0
35	12.0	12.0
36	0.1	5.0

Hi-Fi AUDIO/VIDEO HEAD AMP CIRCUIT

MODE / PIN NO.	REC	PLAY
IC2601		
1	13.0	13.0
2	13.0	13.0
3	13.5	13.5
4	1.2	1.2
5	5.1	5.1
6	0.9	0.9
7	1.0	1.0
8	0.7	0.7
9	2.6	2.6
10	1.5	1.5
11	0	0
12	3.9	3.9
13	3.9	3.9
14	3.9	3.9
15	0.1	0.1
16	13.2	13.2
IC3501		
1	2.6	2.6
2	0	4.2
3	0.3	1.4
4	0	0.7
5	0	0
6	0	0.7
7	0.2	1.4
8	0	0
9	0	0
10	0.2	2.2
11	0	0
12	0	0
13	0	0
14	0.2	2.2
15	---	---
16	6.3	0
17	6.3	0
18	6.3	0
19	---	---
20	---	---
21	---	---
22	---	---
23	---	---
24	---	---
25	11.9	0.5
26	5.0	5.0
27	0	0
28	0	0
29	0	0
30	2.7	2.3
31	5.1	0.1
32	0.1	0.1
33	0	0
34	0.1	0.7
35	12.0	12.0
36	0.1	5.0
IC4401		
1	0	2.6
2	4.0	0
3	0.6	0
4	0	0

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCEMATIC SECTION.

MODE / PIN NO.	REC	PLAY
5	0.6	0.7
6	4.0	0
7	1.0	1.0
8	0.7	0.7
9	2.6	2.6
10	5.1	5.1
11	0	0
12	0	0
13	3.9	3.9
14	3.9	3.9
15	0.1	0.1
16	13.0	13.0
TP3501	0	0
TP4402	4.0	0
TP4405	0	0
TP4406	2.6	2.6

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCEMATIC SECTION.

SYSTEM CONTROL/SERVO

MODE / PIN NO.	STOP	FF	REW
IC2501			
1	13.0	13.0	13.0
2	13.0	13.0	13.0
3	13.5	13.5	13.5
4	1.2	1.2	1.2
5	1.2	1.2	1.2
6	1.2	1.2	1.2
7	0.1	0.1	0.1
8	0	0	0
9	2.6	2.6	2.6
10	1.5	1.5	1.5
11	2.6	2.6	2.6
12	0.5	0.5	0.5
13	3.9	3.9	3.9
14	3.9	3.9	3.9
15	0	0	0
16	0	0	0
17	---	---	---
18	13.5	13.5	13.5
19	2.8	2.8	2.8
20	0	0	0
21	2.8	2.8	2.8
22	0	0	0
23	0.2	0.2	0.2
24	1.8	0	0
25	1.8	0	0
26	13.5	13.5	13.5
27	---	---	---
IC2601			
1	13.0	13.0	13.0
2	13.0	13.0	13.0
3	13.5	13.5	13.5
4	1.2	1.2	1.2
5	5.1	5.1	5.1
6	0.9	0.9	0.9
7	1.0	1.0	1.0
8	0.7	0.7	0.7
9	2.6	2.6	2.6
10	1.5	1.5	1.5
11	0	0	0
12	3.9	3.9	3.9
13	3.9	3.9	3.9
14	3.9	3.9	3.9
15	0.1	0.1	0.1
16	13.2	13.2	13.2
IC6001			
1	5.2	5.2	5.2
2	0	0	0
3	0	0	0
4	---	---	---
5	5.0	5.0	5.0
6	0	0	0
7	0	0	0
8	0	0	0
9	5.0	5.0	5.0
10	0.5	5.0	5.0
11	0	0	0
12	5.2	5.2	5.2
13	0	0	0

MODE / PIN NO.	STOP	FF	REW
14	4.9	4.9	4.9
15	---	---	---
16	20.5	0.5	0.5
17	5.2	5.2	5.2
18	5.2	5.2	5.2
19	---	---	---
20	4.9	4.9	4.9
21	2.5	0	0
22	4.9	2.2	2.2
23	5.0	2.0	2.0
24	0	0	0
25	0	5.0	5.0
26	2.5	2.5	2.5
27	0	0	0
28	0	0	0
29	4.7	4.7	4.7
30	0	0	0
31	0	0	0
32	---	---	---
33	5.0	2.0	2.0
34	4.5	2.0	2.0
35	---	---	---
36	5.1	5.1	5.1
37	2.5	2.5	2.5
38	2.5	2.5	2.5
39	0	0	0
40	---	---	---
41	---	---	---
42	0	0	0
43	---	---	---
44	---	---	---
45	---	---	---
46	2.0	1.0	1.0
47	1.9	1.9	1.9
48	0	0	0
49	1.9	1.9	1.9
50	2.6	2.6	2.6
51	5.1	5.1	5.1
52	2.5	2.5	2.5
53	2.6	2.6	2.6
54	5.2	5.2	5.2
55	5.2	5.2	5.2
56	---	---	---
57	---	---	---
58	4.9	4.9	4.9
59	5.0	5.0	5.0
60	1.9	1.9	1.9
61	0	0	0
62	0.4	0.4	0.4
63	5.0	5.0	5.0
64	0	0	0
65	1.0	1.0	1.0
66	0	0	0
67	2.5	2.5	2.5
68	2.5	2.5	2.5
69	2.5	2.5	2.5
70	2.5	2.5	2.5
71	0	0	0
72	2.5	2.5	2.5

MODE / PIN NO.	STOP	FF	REW
73	5.0	5.0	5.0
74	2.5	2.5	2.5
75	2.5	2.1	2.1
76	2.5	2.5	2.5
77	2.3	1.9	1.9
78	3.5	3.5	3.5
79	5.0	5.0	5.0
80	4.7	4.7	4.7
81	5.4	5.0	5.0
82	0	5.0	5.0
83	5.0	5.0	5.0
84	3.8	3.8	3.8
85	5.2	5.2	5.2
86	4.8	4.8	4.8
87	5.2	5.2	5.2
88	1.7	1.8	1.8
89	5.2	5.2	5.2
90	5.2	5.2	5.2
91	0	0	0
92	0	0	0
93	4.8	4.7	4.7
94	1.7	1.9	1.9
95	0	0	0
96	0	5.2	5.2
97	5.2	0	0
98	2.5	2.5	2.5
99	5.0	5.0	5.0
100	0.2	0.2	0.2
IC6002			
1	1.2	1.2	1.2
2	0	0	0
3	1.2	1.2	1.2
4	---	---	---
IC6003			
1	2.4	2.4	2.4
2	1.2	1.2	1.2
3	0	0	0
4	---	---	---
Q6001			
E	0	0	0
C	0	5.0	5.0
B	0	0	0
Q6002			
E	12.5	12.1	12.1
C	0.5	1.0	1.0
B	12.1	12.1	12.1
Q6003			
E	0	0	0
C	12.1	12.1	12.1
B	0	0	0
Q6005			
E	5.1	5.1	5.1
C	5.1	5.1	5.1
B	4.4	4.4	4.4
Q6006			
E	0	0	0
C	0	0	0
B	0.8	0.8	0.8

MODE / PIN NO.	STOP	FF	REW
Q6009			
E	0	0	0
C	5.1	5.1	5.1
B	---	---	---
Q6010			
E	0	0	0
C	5.1	5.1	5.1
B	---	---	---
Q6011			
E	2.5	2.5	2.5
C	0	0	0
B	0	0	0
Q6012			
E	0	0	0
C	0	0	0
B	0.5	1.0	1.0
TP6001	---	---	---
TP6002	0.1	5.2	5.2
TP6003	3.8	3.8	3.8
TP6004	5.1	5.1	5.1
TP6005	5.1	5.1	5.1
TP6007	0	0	0
TP6008	0	0	0
TP6009	5.2	5.2	5.2
TP6013	2.5	2.5	2.5
TP6016	3.5	3.5	3.5
TP6017	5.2	0	0
TP6018	0	5.2	5.2
TP6019	0	0	0
TP6201	2.6	2.2	2.2
TP6202	4.5	2.4	2.4
TP6203	2.5	2.5	2.5
TP6204	1.0	1.0	1.0
TP6205	2.6	2.6	2.6
TP6206	2.5	2.5	2.5
TP6207	2.5	2.5	2.5
TP6208	4.4	2.6	2.6
TP6209	4.9	0	0
TP6210	2.3	1.9	1.9

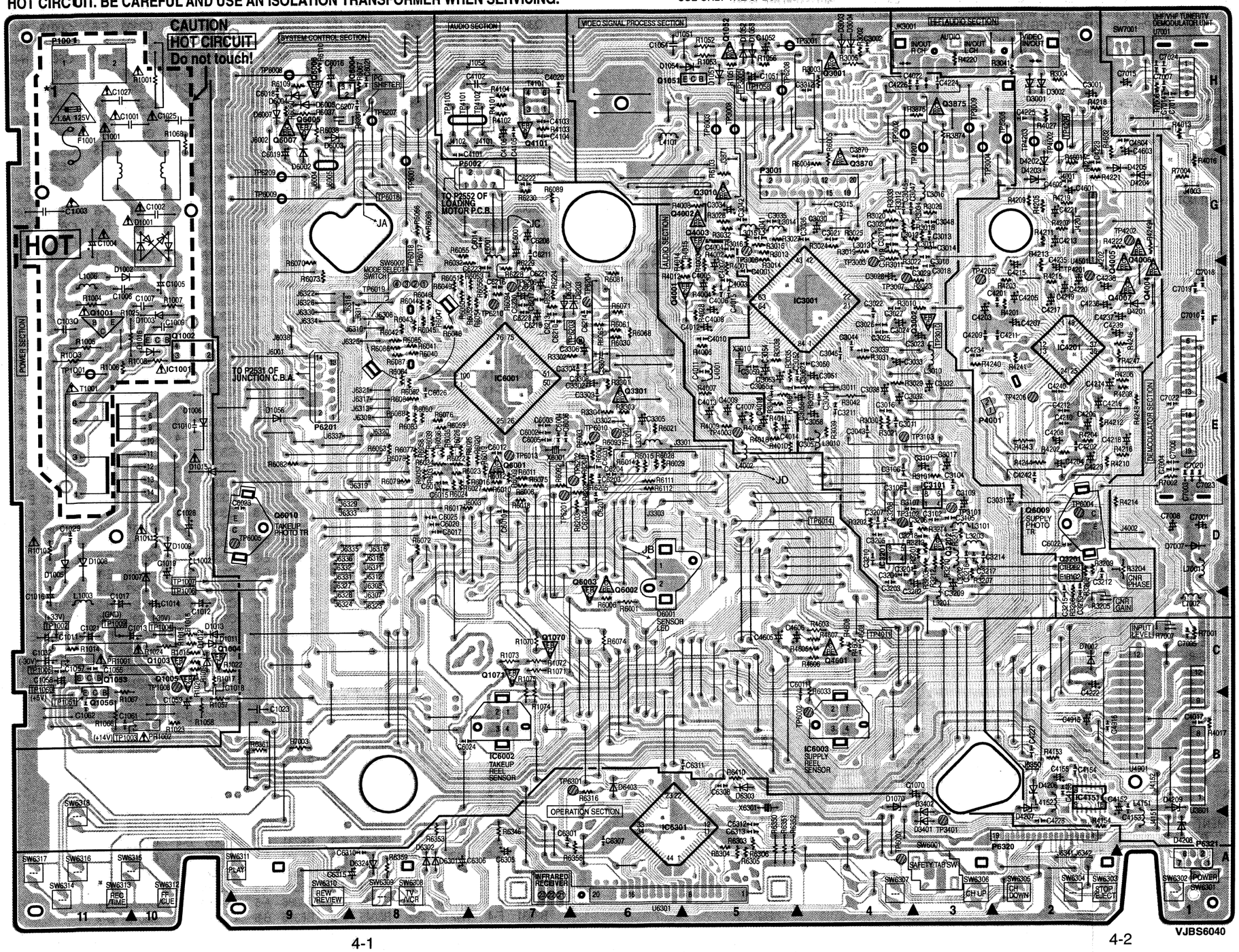
CIRCUIT BOARD LAYOUT
MAIN (POWER SUPPLY/SIGNAL PROCESS/AUDIO/Hi-Fi AUDIO/SYSTEM CONTROL/SERVO/OPERATION) C.B.A. VEPS6040GA(A,B) /VEPS6040GB(C) /VEPS6040HA(E) /VEPS6040HF(F)

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCEMATIC SECTION.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS. FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING, PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

HOT CIRCUIT. BE CAREFUL AND USE AN ISOLATION TRANSFORMER WHEN SERVICING.

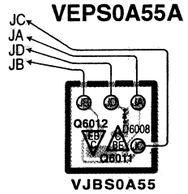


4-1 4-2

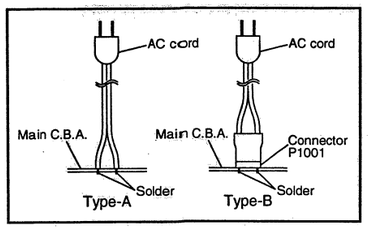
COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-8400	A
PV-8400-K	B
PV-8401	C
VHQ840	D
PV-8450	E
PV-8450-K	F
VHQ860	G
Not Used	Z

MAIN CHILD C.B.A.
VEPS0A55A



*1 AC cord replacement note



1) PV-8400-K, PV-8450, PV-8450-K
AC cord is connected to Connecter P1001 for products using Type-B.

2) PV-8400, PV-8401
Either Type-A or B is used as a AC cord for this model. However, for parts standardization and interchangeability, Type-B will be supplied with Connecter P1001 as a kit (Part No.: VJAS0195-FS) for replacement.
When replacing AC cord on products using Type-A, connect Connector P1001 to Main C.B.A. with solder and connect AC cord to Connector P1001.

Main C.B.A. replacement note for models PV-8400 and PV-8401:
VEPS6040GA or VEPS6040GF for PV-8400, VEPS6040GB or VEPS6040GG for PV-8401 are used as their Main C.B.A. However, for parts standardization, only VEPS6040GA for PV-8400 and VEPS6040GB for PV-8401 are supplied as a replacement.
Please note that VEPS6040GA and VEPS6040GF, VEPS6040GB and VEPS6040GG are interchangeable. Only interchangeable part is supplied as a replacement.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCEMATIC SECTION.

COMPONENT PARTS LOCATION GUIDE
MAIN C.B.A. (A, B, C, E, F)

MAIN	
TRANSISTOR	
Q1001	F-11
Q1002	F-10
Q1003	C-10
Q1004	C-10
Q1005	C-10
Q1051	H-6
Q1052	H-5
Q1053	C-11
Q1056	B-11
Q1070	C-7
Q1071	C-7
Q3001	H-4
Q3002	F-3
Q3010	G-5
Q3201	D-2
Q3202	D-3
Q3301	E-6
Q3870	G-4
Q3875	H-3
Q4001	F-6
Q4002	G-6
Q4003	G-5
Q4004	F-1
Q4005	F-2
Q4006	G-1
Q4007	F-2
Q4101	H-7
Q4601	C-4
Q6001	E-7
Q6002	D-6
Q6003	D-6
Q6005	H-9
Q6006	H-9
Q6007	H-9
Q6009	D-2
Q6010	D-9

MAIN	
IC	
IC1001	F-10
IC3001	F-4
IC3101	D-3
IC3201	D-4
IC4151	B-2
IC4201	F-2
IC6001	F-7
IC6002	B-7
IC6003	B-4
IC6004	H-8
IC6301	A-6

MAIN	
CONNECTOR	
P1001	H-11
P3001	G-5
P4001	E-3
P6002	G-8
P6201	E-9
P6320	A-2
P6321	A-1

MAIN	
ADJUSTMENT	
R3204	D-1
R3205	C-2
R6201	H-8

MAIN	
TEST POINT	
TP1001	F-11
TP1002	C-11
TP1003	B-11
TP1004	C-10
TP1005	C-11
TP1006	D-10
TP1007	D-10
TP1008	C-10
TP1009	C-11
TP1050	C-11
TP1051	B-11
TP1058	H-5
TP3001	H-4
TP3002	H-4
TP3003	G-4
TP3004	G-3
TP3005	H-5
TP3006	G-5
TP3007	F-3
TP3008	H-5
TP3009	H-3
TP3010	F-3
TP3101	D-3
TP3102	D-4
TP3103	E-3
TP3401	A-3
TP4002	H-2
TP4003	E-5
TP4011	C-4
TP4101	H-8
TP4102	H-7
TP4103	H-8
TP4201	F-2
TP4202	G-1
TP4203	H-2
TP4204	H-2

MAIN	
TEST POINT	
TP4205	F-3
TP4206	E-2
TP4207	H-3
TP6001	G-8
TP6002	B-4
TP6003	H-5
TP6004	D-2
TP6005	D-9
TP6007	A-4
TP6008	H-9
TP6009	G-9
TP6010	E-6
TP6012	E-6
TP6013	E-7
TP6014	D-4
TP6016	G-8
TP6017	G-8
TP6018	G-8
TP6019	F-8
TP6201	D-7
TP6202	E-6
TP6203	F-6
TP6204	F-6
TP6205	H-2
TP6206	F-7
TP6207	H-8
TP6208	H-5
TP6209	G-9
TP6210	F-7
TP6301	B-7

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-8400	A
PV-8400-K	B
PV-8401	C
VHQ840	D
PV-8450	E
PV-8450-K	F
VHQ860	G
Not Used	Z

LEADLESS COMPONENT PARTS LOCATION GUIDE
MAIN C.B.A. (A, B, C, E, F)

Q1003	C-10	R3032	G-5	R4212	E-2	R6046	F-8	R6353	A-8	C3213	C-2	C6011	C-4
Q1004	C-10	R3033	G-4	R4213	F-2	R6047	F-8	R6358	A-6	C3214	D-3	C6012	E-7
Q1005	C-10	R3034	G-3	R4214	D-1	R6048	F-8	R6361	B-9	C3215	C-2	C6013	E-8
Q1052	H-5	R3035	F-5	R4215	F-2	R6049	F-8	R6410	B-5	C3216	D-3	C6014	G-7
Q1070	C-7	R3036	E-5	R4216	E-1	R6050	F-8	R7001	C-1	C3217	D-3	C6015	D-8
Q1071	C-7	R3037	E-4	R4217	G-2	R6051	F-8	R7002	E-1	C3218	D-3	C6017	D-8
Q3001	H-4	R3038	F-5	R4218	H-2	R6052	F-7	R7004	G-1	C3303	E-6	C6018	H-9
Q3002	F-3	R3039	E-4	R4219	G-2	R6053	E-7	R7006	H-1	C3304	F-6	C6020	D-8
Q3010	G-5	R3040	E-5	R4220	H-3	R6054	F-7	C1010	E-10	C3306	F-6	C6021	H-8
Q3201	D-2	R3041	H-2	R4221	G-2	R6055	G-8	C1029	D-11	C3307	F-6	C6022	D-2
Q3202	D-3	R3101	E-3	R4222	G-1	R6056	F-7	C1055	C-11	C3308	F-6	C6023	D-9
Q3301	E-6	R3201	D-3	R4240	F-3	R6057	E-8	C1057	C-11	C3312	H-4	C6024	B-8
Q3870	G-4	R3202	D-4	R4241	F-2	R6058	E-8	C1061	B-11	C3870	G-4	C6025	D-8
Q3875	H-3	R3203	D-3	R4244	E-2	R6059	E-8	C1062	B-11	C4001	F-5	C6031	E-6
Q4001	F-5	R3206	C-2	R4246	F-1	R6060	H-9	C3002	H-4	C4003	F-5	C6201	D-6
Q4002	G-5	R3207	D-3	R4247	F-1	R6061	F-6	C3010	G-3	C4004	G-5	C6202	D-6
Q4003	G-5	R3208	D-2	R4248	E-1	R6062	E-8	C3011	E-4	C4005	F-5	C6203	E-6
Q4004	F-1	R3209	D-2	R4249	G-1	R6063	E-8	C3012	G-4	C4006	F-5	C6204	E-6
Q4005	F-1	R3210	D-3	R4601	G-2	R6064	F-8	C3013	G-3	C4010	F-5	C6207	H-8
Q4006	G-1	R3211	D-3	R4602	H-2	R6065	F-6	C3014	G-3	C4011	F-5	C6210	F-7
Q4007	F-1	R3212	D-3	R4604	C-4	R6066	G-8	C3015	G-4	C4015	F-5	C6211	G-7
Q4101	H-7	R3213	D-3	R4605	C-4	R6067	H-8	C3016	E-4	C4017	B-1	C6213	F-7
Q4601	C-4	R3214	D-3	R4606	C-4	R6068	F-6	C3018	F-3	C4020	H-7	C6214	F-6
Q6001	E-7	R3301	E-6	R4607	C-4	R6069	G-8	C3019	G-4	C4022	H-3	C6216	F-7
Q6002	D-6	R3302	F-6	R4608	C-4	R6070	G-9	C3020	G-4	C4101	H-8	C6217	F-7
Q6003	D-6	R3303	E-6	R6003	E-6	R6071	F-6	C3021	G-4	C4103	H-7	C6222	G-7
Q6005	H-9	R3304	E-6	R6004	G-4	R6072	D-8	C3022	F-4	C4104	H-7	C6223	F-7
Q6006	H-9	R3875	H-3	R6005	G-4	R6073	F-9	C3025	F-4	C4105	H-7	C6228	F-7
Q6007	H-9	R4001	F-5	R6006	C-6	R6075	E-7	C3026	F-4	C4153	A-2	C6230	F-7
R1006	F-11	R4002	G-5	R6007	E-6	R6076	E-8	C3027	F-4	C4154	B-2	C6301	A-7
R1014	C-11	R4003	G-5	R6008	D-7	R6077	E-8	C3029	F-3	C4156	B-2	C6307	A-6
R1015	C-10	R4004	F-5	R6009	E-7	R6078	E-8	C3035	G-1	C4201	F-2	C6308	B-5
R1016	C-10	R4005	E-5	R6010	D-7	R6079	E-8	C3036	G-4	C4202	E-2	C6310	A-8
R1017	C-10	R4006	F-5	R6011	E-7	R6080	E-8	C3039	F-4	C4209	F-3	C6311	B-5
R1018	C-10	R4007	E-5	R6012	E-7	R6081	F-6	C3041	G-5	C4210	E-2	C6312	A-5
R1019	C-10	R4008	G-5	R6014	E-6	R6082	E-9	C3042	G-5	C4211	F-2	C6313	A-5
R1020	C-10	R4009	E-5	R6015	E-6	R6083	E-8	C3043	E-4	C4212	E-2	C7003	E-1
R1022	C-10	R4010	E-5	R6016	E-7	R6084	E-8	C3044	F-4	C4213	G-2	C7004	E-1
R1023	B-10	R4011	E-5	R6017	D-8	R6085	F-8	C3045	F-4	C4214	E-2	C7005	C-1
R1051	H-5	R4012	F-5	R6018	D-7	R6086	F-8	C3046	G-4	C4215	F-2	C7006	E-1
R1056	H-5	R4013	H-1	R6019	E-7	R6087	F-8	C3047	G-3	C4216	E-2	C7007	H-1
R3002	H-4	R4014	G-5	R6020	E-7	R6088	E-8	C3048	G-3	C4217	F-2	C7010	F-1
R3003	H-4	R4015	G-5	R6021	E-6	R6089	G-7	C3049	E-4	C4218	E-1	C7011	H-1
R3004	H-2	R4016	G-1	R6022	E-8	R6092	E-7	C3050	F-4	C4223	G-2	C7014	H-1
R3010	F-3	R4017	B-1	R6023	E-8	R6093	E-6	C3052	F-4	C4224	H-3	C7018	F-1
R3011	G-4	R4018	E-5	R6024	D-8	R6094	F-7	C3055	E-5	C4225	H-2	C7019	F-1
R3012	G-4	R4027	H-2	R6025	E-7	R6103	G-5	C3057	E-4	C4226	H-3	C7020	E-1
R3013	G-5	R4028	F-5	R6026	E-8	R6109	H-8	C3059	F-5	C4227	B-2	C7022	E-1
R3014	G-5	R4101	H-7	R6026	E-8	R6110	H-8	C3062	E-5	C4228	A-2	C7023	E-1
R3015	G-5	R4102	H-7	R6027	D-7	R6111	E-6	C3102	D-3	C4234	F-3	C7024	H-1
R3016	G-5	R4103	H-7	R6028	E-6	R6112	D-6	C3104	D-3	C4240	E-2		
R3018	G-3	R4104	H-7	R6029	E-6	R6202	D-6	C3105	D-3	C4242	E-2		
R3019	G-4	R4153	B-2	R6030	F-6	R6203	D-6	C3106	E-4	C4601	G-2		
R3020	G-4	R4154	A-2	R6031	E-8	R6204	E-6	C3107	D-4	C4602	G-2		
R3021	E-4	R4201	F-2	R6032	G-8	R6205	D-6	C3108	D-4	C4603	H-1		
R3022	G-4	R4202	E-2	R6034	E-8	R6224	F-7	C3201	D-3	C4604	H-1		
R3023	F-3	R4203	F-2	R6035	E-8	R6228	F-7	C3203	D-4	C4606	C-5		
R3024	G-4	R4204	E-2	R6036	E-8	R6229	G-7	C3204	D-4	C4608	C-4		
R3025	G-4	R4205	G-2	R6039	E-8	R6230	G-7	C3205	D-4	C4916	B-2		
R3026	G-3	R4206	E-1	R6040	F-8	R6231	F-7	C3206	D-4	C6002	E-7		
R3027	G-5	R4207	G-2	R6041	F-8	R6303	A-5	C3207	D-4	C6003	E-7		
R3028	G-5	R4208	E-1	R6042	F-8	R6304	A-5	C3208	D-4	C6004	E-7		
R3029	E-4	R4209	G-2	R6043	F-8	R6305	A-5	C3210	D-4	C6005	E-7		
R3030	E-4	R4210	E-2	R6044	F-8	R6306	A-5	C3211	E-4	C6006	E-7		
R3031	F-4	R4211	G-2	R6045	F-8	R6316	B-6	C3212	D-2	C6010	D-7		

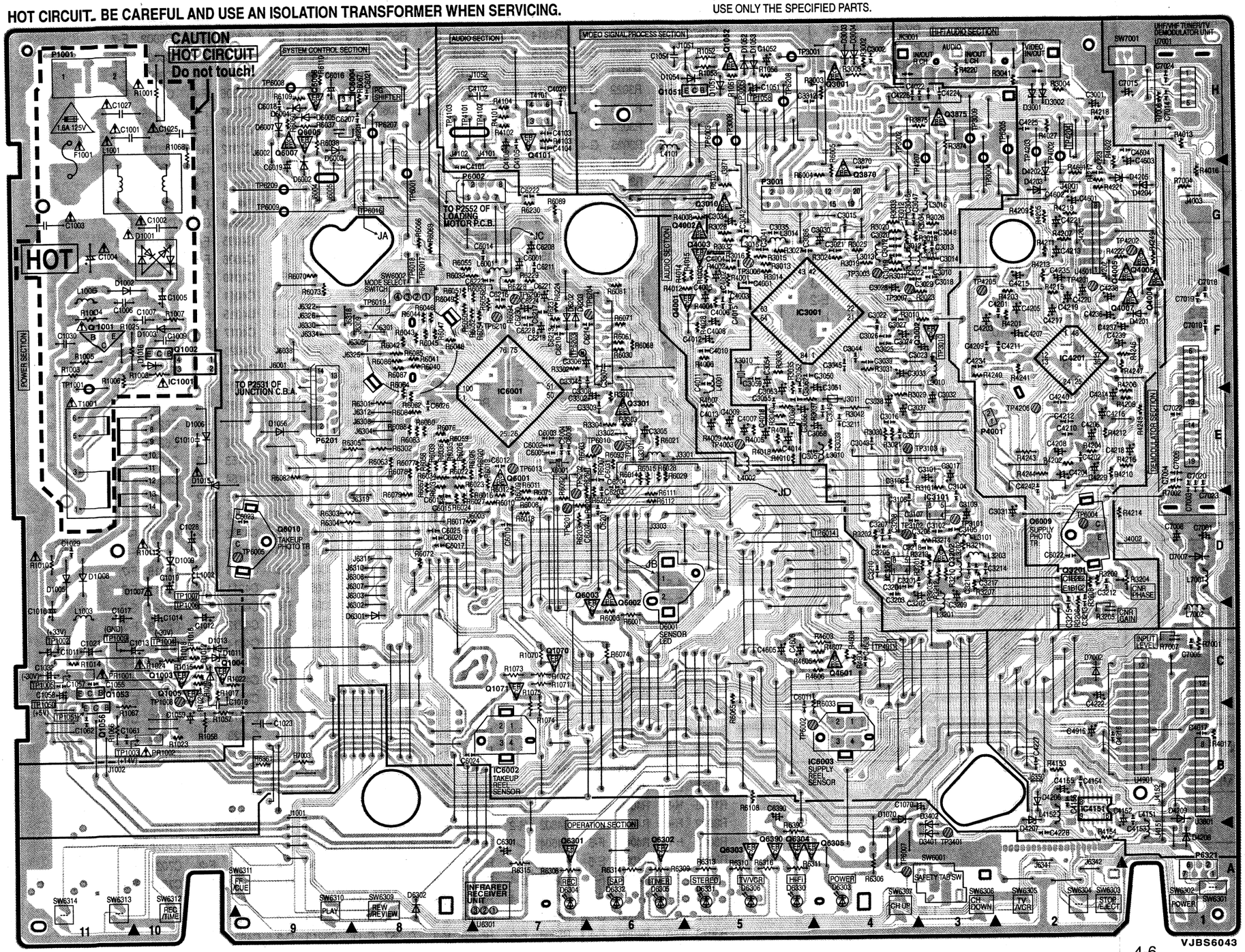
MAIN (POWER SUPPLY/SIGNAL PROCESS/AUDIO/Hi-Fi AUDIO/SYSTEM CONTROL/SERVO/OPERATION) C.B.A. VEPS6043GA(D) /VEPS6043HA(G)

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCEMATIC SECTION.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

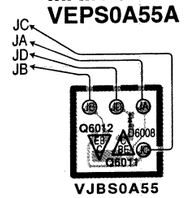
HOT CIRCUIT- BE CAREFUL AND USE AN ISOLATION TRANSFORMER WHEN SERVICING.



COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-8400	A
PV-8400-K	B
PV-8401	C
VHQ840	D
PV-8450	E
PV-8450-K	F
VHQ860	G
Not Used	Z

MAIN CHILD C.B.A.
VEPS0A55A



NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCEMATIC SECTION.

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PV-8400	A
PV-8400-K	B
PV-8401	C
VHQ840	D
PV-8450	E
PV-8450-K	F
VHQ860	G
Not Used	Z

COMPONENT PARTS LOCATION GUIDE
MAIN C.B.A. (D, G)

MAIN	
TRANSISTOR	
Q1001	F-11
Q1002	F-10
Q1003	C-10
Q1004	C-10
Q1005	C-10
Q1051	H-6
Q1052	H-5
Q1053	C-11
Q1056	B-11
Q1070	C-7
Q1071	C-7
Q3001	H-4
Q3002	F-3
Q3010	G-5
Q3201	D-2
Q3202	D-3
Q3301	E-6
Q3870	G-4
Q3875	H-3
Q4001	F-6
Q4002	G-6
Q4003	G-5
Q4004	F-1
Q4005	F-2
Q4006	G-1
Q4007	F-2
Q4101	H-7
Q4601	C-4
Q6001	E-7
Q6002	D-6
Q6003	D-6
Q6005	H-9
Q6006	H-9
Q6007	H-9
Q6009	D-2
Q6010	D-9
Q6301	A-7
Q6302	A-6
Q6303	A-5
Q6304	A-5
Q6305	A-4
Q6390	A-5

MAIN	
IC	
IC1001	F-10
IC3001	F-4
IC3101	D-3
IC3201	D-4
IC4151	B-2
IC4201	F-2
IC6001	F-7
IC6002	B-7
IC6003	B-4
IC6004	H-8

MAIN	
CONNECTOR	
P1001	H-11
P3001	G-5
P4001	E-3
P6002	G-8
P6201	E-9
P6321	A-1

MAIN	
ADJUSTMENT	
R3204	D-1
R3205	C-2
R6201	H-8

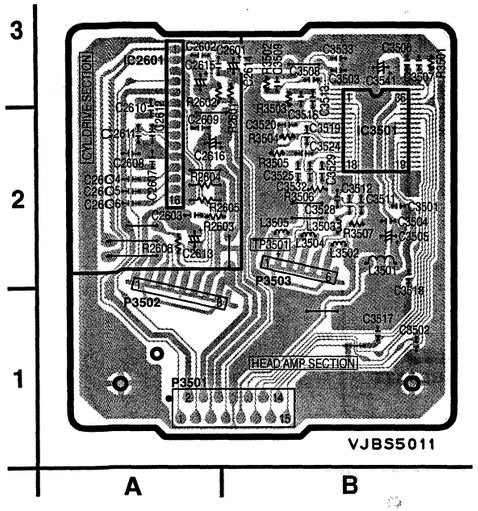
MAIN	
TEST POINT	
TP1001	F-11
TP1002	C-11
TP1003	B-11
TP1004	C-10
TP1005	C-11
TP1006	D-10
TP1007	D-10
TP1008	C-10
TP1009	C-11
TP1050	C-11
TP1051	B-11
TP1058	H-5
TP3001	H-4
TP3002	H-4
TP3003	G-4
TP3004	G-3
TP3005	H-5
TP3006	G-5
TP3007	F-3
TP3008	H-5
TP3009	H-3
TP3010	F-3
TP3101	D-3
TP3102	D-4
TP3103	E-3
TP3401	A-3
TP4002	H-2
TP4003	E-5
TP4011	C-4
TP4101	H-8
TP4102	H-7
TP4103	H-8
TP4201	F-2
TP4202	G-1

MAIN	
TEST POINT	
TP4203	H-2
TP4204	H-2
TP4205	F-3
TP4206	E-2
TP4207	H-3
TP6001	G-8
TP6002	B-4
TP6003	H-5
TP6004	D-2
TP6005	D-9
TP6007	A-4
TP6008	H-9
TP6009	G-9
TP6010	E-6
TP6012	E-6
TP6013	E-7
TP6014	D-4
TP6016	G-8
TP6017	G-8
TP6018	G-8
TP6019	F-8
TP6201	D-7
TP6202	E-6
TP6203	F-6
TP6204	F-6
TP6205	H-2
TP6206	F-7
TP6207	H-8
TP6208	H-5
TP6209	G-9
TP6210	F-7

LEADLESS COMPONENT PARTS LOCATION GUIDE
MAIN C.B.A. (D, G)

Q1003	C-10	R3014	G-5	R4010	E-5	R6004	G-4	R6061	F-6	C1061	B-11	C3214	D-3	C4604	H-1
Q1004	C-10	R3015	G-5	R4011	E-5	R6005	G-4	R6062	E-8	C1062	B-11	C3215	C-2	C4606	C-5
Q1005	C-10	R3016	G-5	R4012	F-5	R6006	C-6	R6063	E-8	C3002	H-4	C3216	D-3	C4608	C-4
Q1052	H-5	R3018	G-3	R4013	H-1	R6007	E-6	R6064	F-8	C3010	G-3	C3217	D-3	C4916	B-2
Q1070	C-7	R3019	G-4	R4014	G-5	R6008	D-7	R6065	B-5	C3011	E-4	C3218	D-3	C6002	E-7
Q1071	C-7	R3020	G-4	R4015	G-5	R6009	E-7	R6066	G-8	C3012	G-4	C3303	E-6	C6003	E-7
Q3001	H-4	R3021	E-4	R4016	G-1	R6010	D-7	R6067	H-8	C3013	G-3	C3304	F-6	C6004	E-7
Q3002	F-3	R3022	G-4	R4017	B-1	R6011	E-7	R6068	F-6	C3014	G-3	C3306	F-6	C6005	E-7
Q3010	G-5	R3023	F-3	R4018	E-5	R6012	E-7	R6069	G-8	C3015	G-4	C3307	F-6	C6006	E-7
Q3201	D-2	R3024	G-4	R4027	H-2	R6014	E-6	R6070	G-9	C3016	E-4	C3308	F-6	C6010	D-7
Q3202	D-3	R3025	G-4	R4028	F-5	R6015	E-6	R6071	F-6	C3018	F-3	C3312	H-4	C6011	C-4
Q3301	E-6	R3026	G-3	R4101	H-7	R6016	E-7	R6072	D-8	C3019	G-4	C3870	G-4	C6012	E-7
Q3870	G-4	R3027	G-5	R4102	H-7	R6017	D-8	R6073	F-9	C3020	G-4	C4001	F-5	C6013	E-8
Q3875	H-3	R3028	G-5	R4103	H-7	R6018	D-7	R6075	E-7	C3021	G-4	C4003	F-5	C6014	G-7
Q4001	F-5	R3029	E-4	R4104	H-7	R6019	E-7	R6076	E-8	C3022	F-4	C4004	G-5	C6015	D-8
Q4002	G-5	R3030	E-4	R4153	B-2	R6020	E-7	R6077	E-8	C3025	F-4	C4005	F-5	C6017	D-8
Q4003	G-5	R3031	F-4	R4154	A-2	R6021	E-6	R6078	E-8	C3026	F-4	C4006	F-5	C6018	H-9
Q4004	F-1	R3032	G-5	R4201	F-2	R6022	E-8	R6079	E-8	C3027	F-4	C4010	F-5	C6020	D-8
Q4005	F-1	R3033	G-4	R4202	E-2	R6023	E-8	R6080	E-8	C3029	F-3	C4011	F-5	C6021	H-8
Q4006	G-1	R3034	G-3	R4203	F-2	R6024	D-8	R6081	F-6	C3035	G-1	C4015	F-5	C6022	D-2
Q4007	F-1	R3035	F-5	R4204	E-2	R6025	E-7	R6082	E-9	C3036	G-4	C4017	B-1	C6023	D-9
Q4101	H-7	R3036	E-5	R4205	G-2	R6026	E-8	R6083	E-8	C3039	F-4	C4020	H-7	C6024	B-8
Q4601	C-4	R3037	E-4	R4206	E-1	R6026	E-8	R6084	E-8	C3041	G-5	C4022	H-3	C6025	D-8
Q6001	E-7	R3038	F-5	R4207	G-2	R6027	D-7	R6085	F-8	C3042	G-5	C4101	H-8	C6031	E-6
Q6002	D-6	R3039	E-4	R4208	E-1	R6028	E-6	R6086	F-8	C3043	E-4	C4103	H-7	C6201	D-6
Q6003	D-6	R3040	E-5	R4209	G-2	R6029	E-6	R6087	F-8	C3044	F-4	C4104	H-7	C6202	D-6
Q6005	H-9	R3041	H-2	R4210	E-2	R6030	F-6	R6088	E-8	C3045	F-4	C4105	H-7	C6203	E-6
Q6006	H-9	R3101	E-3	R4211	G-2	R6031	E-8	R6089	G-7	C3046	G-4	C4153	A-2	C6204	E-6
Q6007	H-9	R3201	D-3	R4212	E-2	R6032	G-8	R6092	E-7	C3047	G-3	C4154	B-2	C6207	H-8
Q6301	A-7	R3202	D-4	R4213	F-2	R6034	E-8	R6093	E-6	C3048	G-3	C4156	B-2	C6210	F-7
Q6302	A-6	R3203	D-3	R4214	D-1	R6035	E-8	R6094	F-7	C3049	E-4	C4201	F-2	C6211	G-7
Q6303	A-5	R3206	C-2	R4215	F-2	R6036	E-8	R6103	G-5	C3050	F-4	C4202	E-2	C6213	F-7
Q6304	A-5	R3207	D-3	R4216	E-1	R6039	E-8	R6108	B-5	C3052	F-4	C4209	F-3	C6214	F-6
Q6305	A-4	R3208	D-2	R4217	G-2	R6040	F-8	R6109	H-8	C3055	E-5	C4210	E-2	C6216	F-7
Q6390	A-5	R3209	D-2	R4218	H-2	R6041	F-8	R6110	H-8	C3057	E-4	C4211	F-2	C6217	F-7
R1006	F-11	R3210	D-3	R4219	G-2	R6042	F-8	R6111	E-6	C3059	F-5	C4212	E-2	C6222	G-7
R1014	C-11	R3211	D-3	R4220	H-3	R6043	F-8	R6112	D-6	C3062	E-5	C4213	G-2	C6223	F-7
R1015	C-10	R3212	D-3	R4221	G-2	R6044	F-8	R6202	D-6	C3102	D-3	C4214	E-2	C6228	F-7
R1016	C-10	R3213	D-3	R4222	G-1	R6045	F-8	R6203	D-6	C3104	D-3	C4215	F-2	C6230	F-7
R1017	C-10	R3214	D-3	R4240	F-3	R6046	F-8	R6204	E-6	C3105	D-3	C4216	E-2	C7003	E-1
R1018	C-10	R3301	E-6	R4241	F-2	R6047	F-8	R6205	D-6	C3106	E-4	C4217	F-2	C7004	E-1
R1019	C-10	R3302	F-6	R4244	E-2	R6048	F-8	R6224	F-7	C3107	D-4	C4218	E-1	C7005	C-1
R1020	C-10	R3303	E-6	R4246	F-1	R6049	F-8	R6228	F-7	C3108	D-4	C4223	G-2	C7006	E-1
R1022	C-10	R3304	E-6	R4247	F-1	R6050	F-8	R6229	G-7	C3201	D-3	C4224	H-3	C7010	F-1
R1023	B-10	R3875	H-3	R4248	E-1	R6051	F-8	R6230	G-7	C3203	D-4	C4225	H-2	C7014	H-1
R1051	H-5	R4001	F-5	R4249	G-1	R6052	F-7	R6231	F-7	C3204	D-4	C4226	H-3	C7018	F-1
R1056	H-5	R4002	G-5	R4601	G-2	R6053	E-7	R7001	C-1	C3205	D-4	C4227	B-2	C7019	F-1
R3002	H-4	R4003	G-5	R4602	H-2	R6054	F-7	R7002	E-1	C3206	D-4	C4228	A-2	C7020	E-1
R3003	H-4	R4004	F-5	R4604	C-4	R6055	G-8	R7004	G-1	C3207	D-4	C4234	F-3	C7022	E-1
R3004	H-2	R4005	E-5	R4605	C-4	R6056	F-7	R7006	H-1	C3208	D-4	C4240	E-2	C7023	E-1
R3010	F-3	R4006	F-5	R4606	C-4	R6057	E-8	C1010	E-10	C3210	D-4	C4242	E-2	C7024	H-1
R3011	G-4	R4007	E-5	R4607	C-4	R6058	E-8	C1029	D-11	C3211	E-4	C4601	G-2		
R3012	G-4	R4008	G-5	R4608	C-4	R6059	E-8	C1055	C-11	C3212	D-2	C4602	G-2		
R3013	G-5	R4009	E-5	R6003	E-6	R6060	H-9	C1057	C-11	C3213	C-2	C4603	H-1		

HEAD AMP C.B.A. VEPS5011A (A, B, C, D)



HEAD AMP	
IC	
IC2601	A-3
IC3501	C-2
CONNECTOR	
P3501	A-1
P3502	A-1
P3503	B-2
TEST POINT	
TP3501	C-2

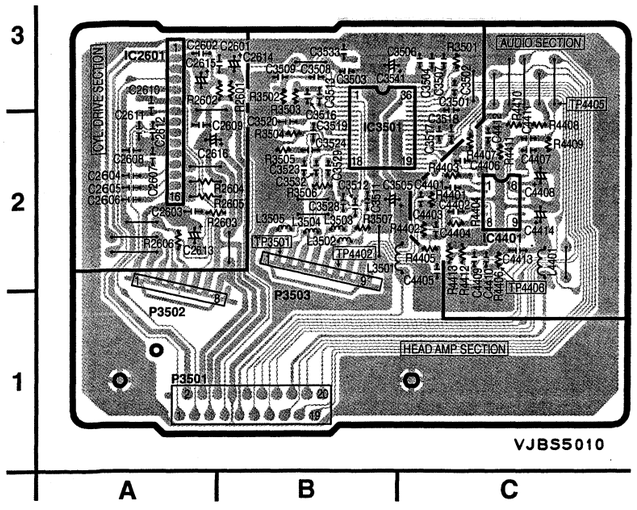
LEADLESS COMPONENT PARTS LOCATION GUIDE
HEAD AMP C.B.A.

R2601	B-2	C2607	A-2	C3516	B-2
R2602	A-3	C2608	A-2	C3517	B-1
R2603	A-2	C2609	A-2	C3518	B-1
R2606	A-2	C2610	A-3	C3519	B-2
R3501	B-3	C2611	A-2	C3520	B-2
R3502	B-3	C2612	A-2	C3524	B-2
R3503	B-2	C3501	B-2	C3525	B-2
R3504	B-2	C3502	B-1	C3528	B-2
R3505	B-2	C3503	B-3	C3529	B-2
R3506	B-2	C3504	B-2	C3532	B-2
R3507	B-2	C3506	B-3	C3533	B-3
C2601	B-3	C3507	B-3	L3502	B-2
C2602	A-3	C3508	B-3	L3503	B-2
C2603	A-2	C3509	B-3	L3504	B-2
C2604	A-2	C3511	B-2	L3505	B-2
C2605	A-2	C3512	B-2		
C2606	A-2	C3513	B-2		

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCEMATIC SECTION.

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS. FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING, PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

Hi-Fi AUDIO/VIDEO HEAD AMP C.B.A. VEPS5010B (E, F, G)



Hi-Fi AUDIO/VIDEO HEAD AMP	
IC	
IC2601	A-3
IC3501	C-2
IC4401	C-2
CONNECTOR	
P3501	A-1
P3502	A-1
P3503	B-1
TEST POINT	
TP3501	C-2
TP4402	B-2
TP4405	C-3
TP4406	C-2

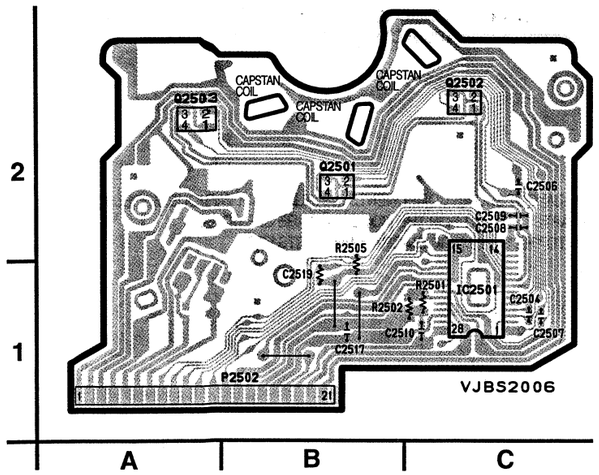
LEADLESS COMPONENT PARTS LOCATION GUIDE
Hi-Fi AUDIO/VIDEO HEAD AMP C.B.A.

R2601	B-3	C2602	A-3	C3519	B-2
R2602	A-2	C2603	A-2	C3520	B-2
R2603	A-2	C2604	A-2	C3523	B-2
R2606	A-2	C2605	A-2	C3524	B-2
R3501	C-3	C2606	A-2	C3528	B-2
R3502	B-3	C2607	A-2	C3529	B-2
R3503	B-3	C2608	A-2	C3532	B-2
R3504	B-2	C2609	A-2	C3533	B-3
R3505	B-2	C2610	A-3	C4401	C-2
R3506	B-2	C2611	A-2	C4402	C-2
R3507	B-2	C2612	A-2	C4403	C-2
R4401	C-2	C3501	C-3	C4404	C-2
R4402	C-2	C3502	C-3	C4405	C-2
R4403	C-2	C3503	B-3	C4406	C-2
R4404	C-2	C3504	C-3	C4407	C-2
R4405	C-2	C3506	C-3	C4409	C-2
R4406	C-2	C3507	C-3	C4410	C-2
R4407	C-2	C3508	B-3	C4411	C-2
R4408	C-2	C3509	B-3	C4412	C-2
R4409	C-2	C3511	B-2	C4413	C-2
R4410	C-2	C3512	B-2	L3502	B-2
R4411	C-2	C3513	B-2	L3503	B-2
R4412	C-2	C3516	B-2	L3504	B-2
R4413	C-2	C3517	C-2	L3505	B-2
C2601	B-3	C3518	C-2		

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-8400	A
PV-8400-K	B
PV-8401	C
VHQ840	D
PV-8450	E
PV-8450-K	F
VHQ860	G
Not Used	Z

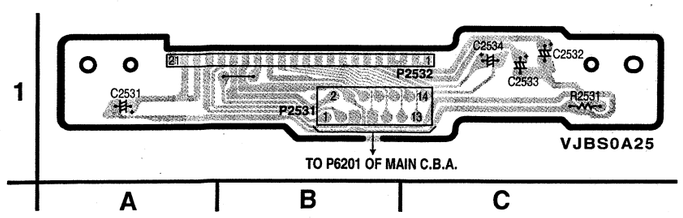
CAPSTAN STATOR UNIT



NOTE:

1. CAPSTAN STATOR UNIT IS SUPPLIED AS A CAPSTAN STATOR KIT ONLY. HOWEVER, IC2501(AN3845SC) IS AVAILABLE SEPARATELY AS A REPLACEMENT PART.
2. WHEN INSTALLING THE IC2501 OR CAPSTAN STATOR UNIT, BE SURE TO APPLY SILICON GREASE (VFK1301). REFER TO "CAPSTAN STATOR UNIT" OF "DISASSEMBLY/ASSEMBLY PROCEDURES OF MECHANISM" SECTION.

JUNCTION C.B.A. VEPS0A25A



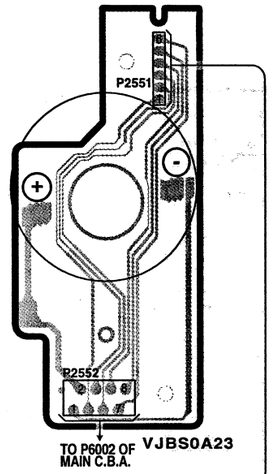
NOTE:

FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCEMATIC SECTION.

NOTE:

CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS. FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING, PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

LOADING MOTOR P.C.B.



ADUIO CONTROL HEAD P.C.B.

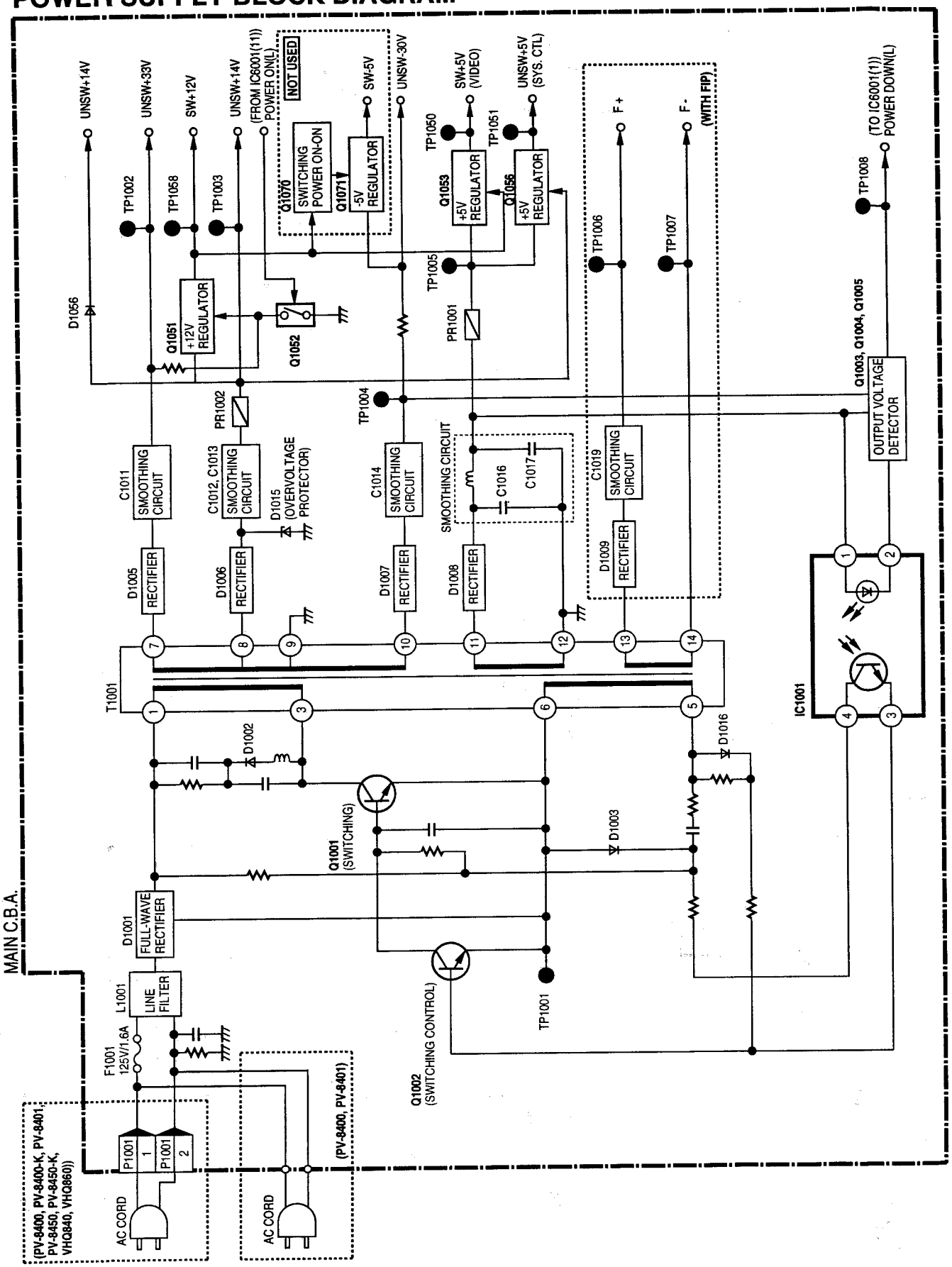
VJBS0A24

COMPARISON CHART OF MODELS & MARKS

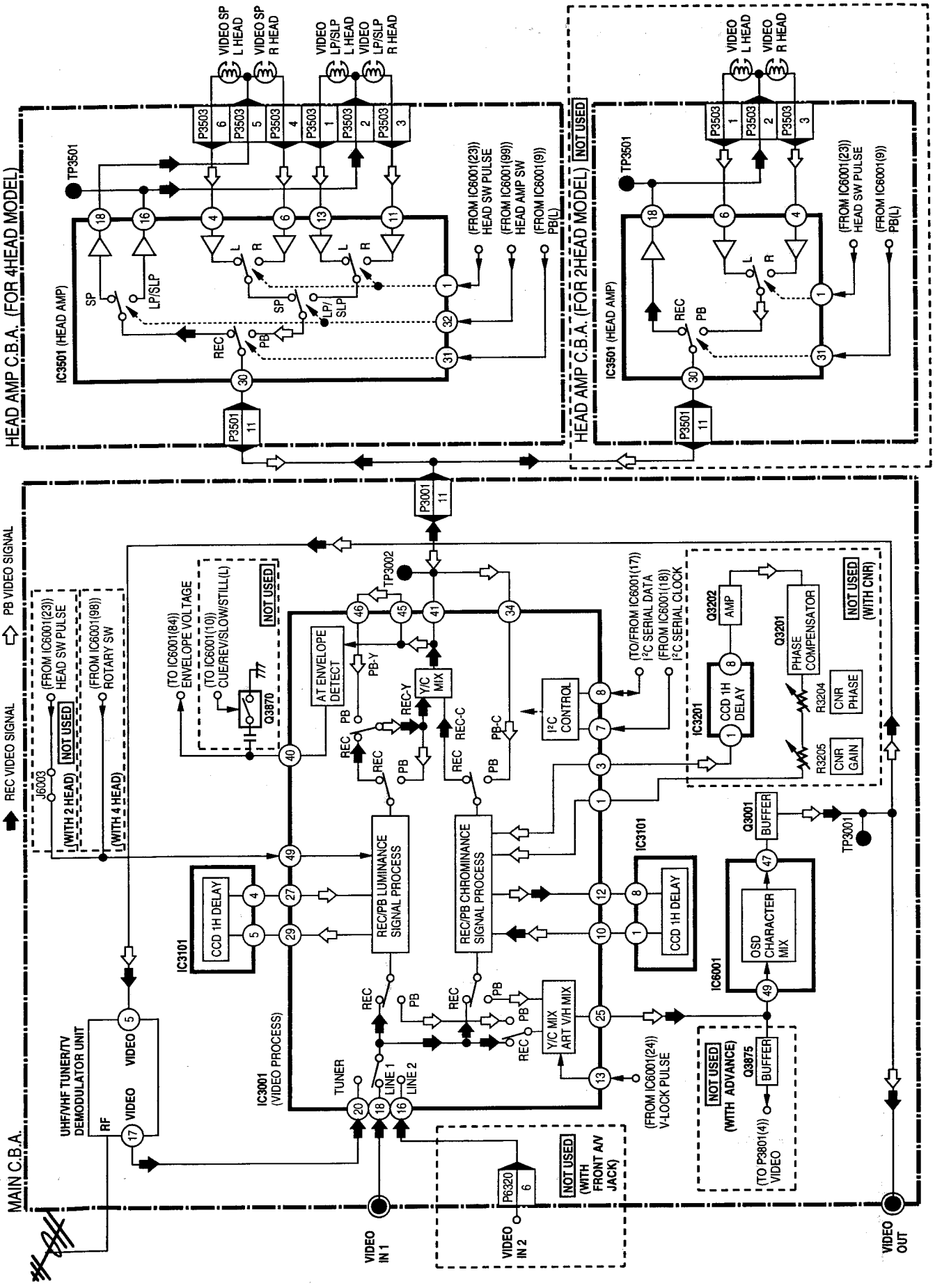
MODEL	MARK
PV-8400	A
PV-8400-K	B
PV-8401	C
VHQ840	D
PV-8450	E
PV-8450-K	F
VHQ860	G
Not Used	Z

BLOCK DIAGRAMS

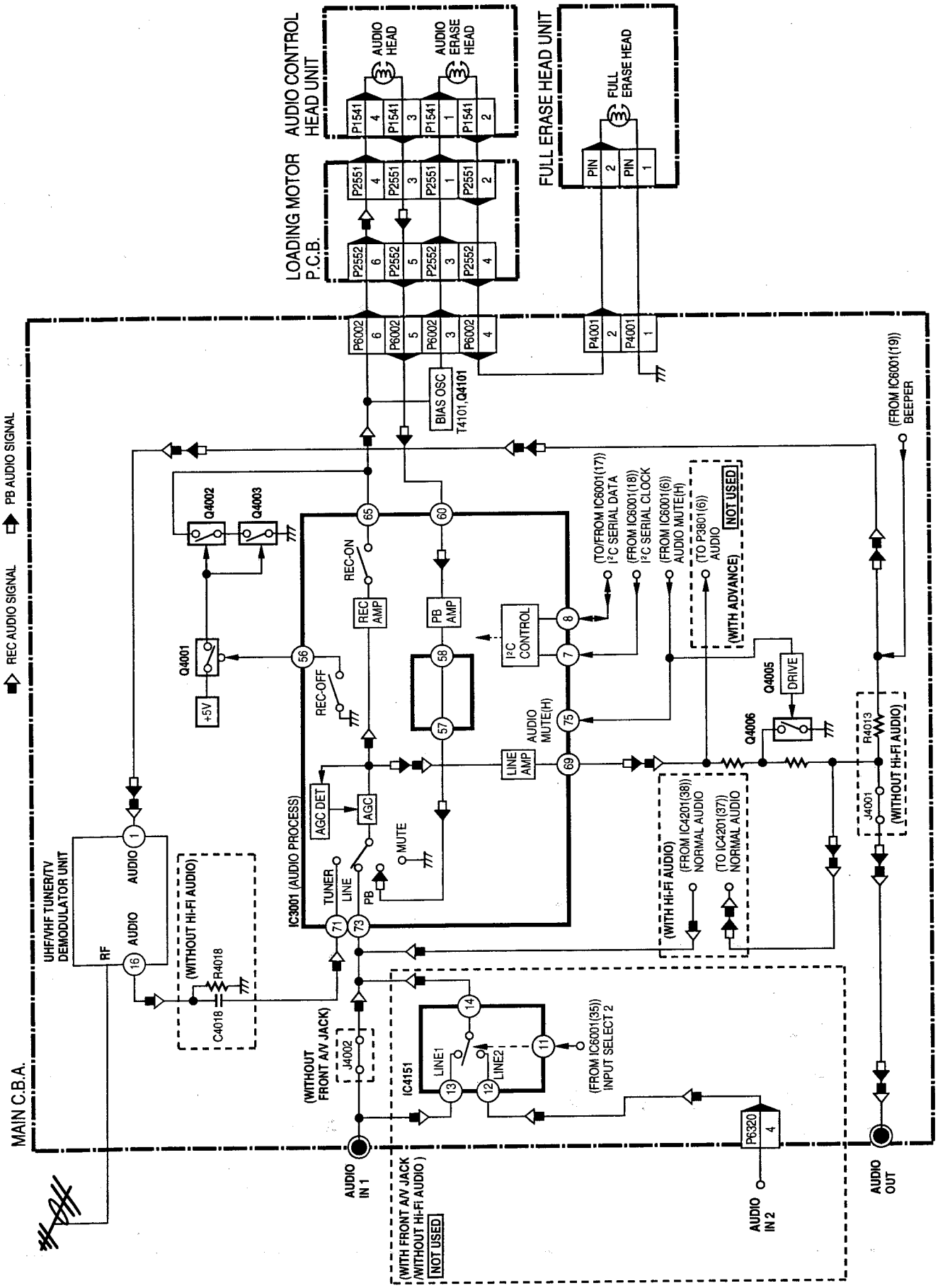
POWER SUPPLY BLOCK DIAGRAM



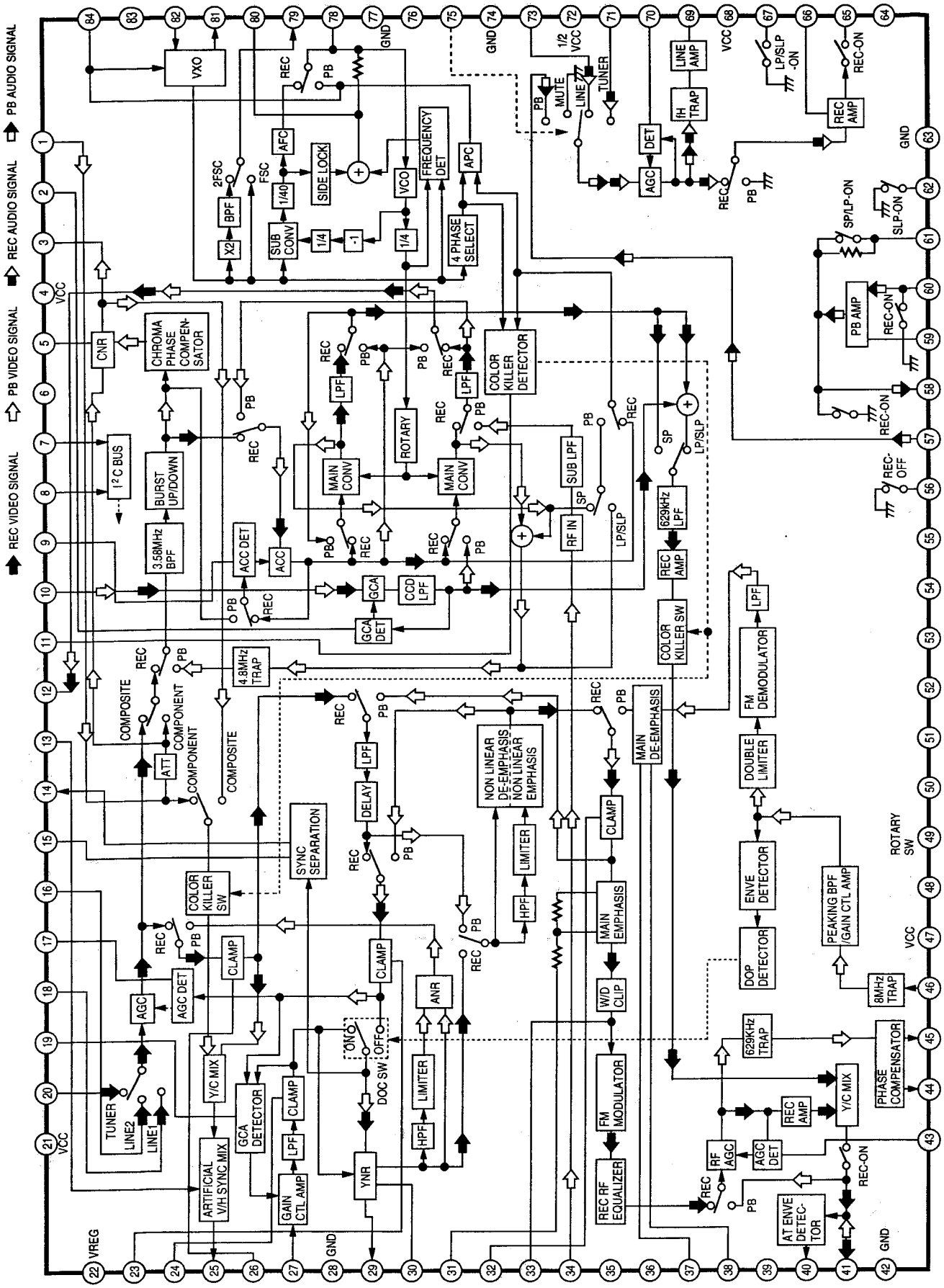
VIDEO SIGNAL PATH BLOCK DIAGRAM



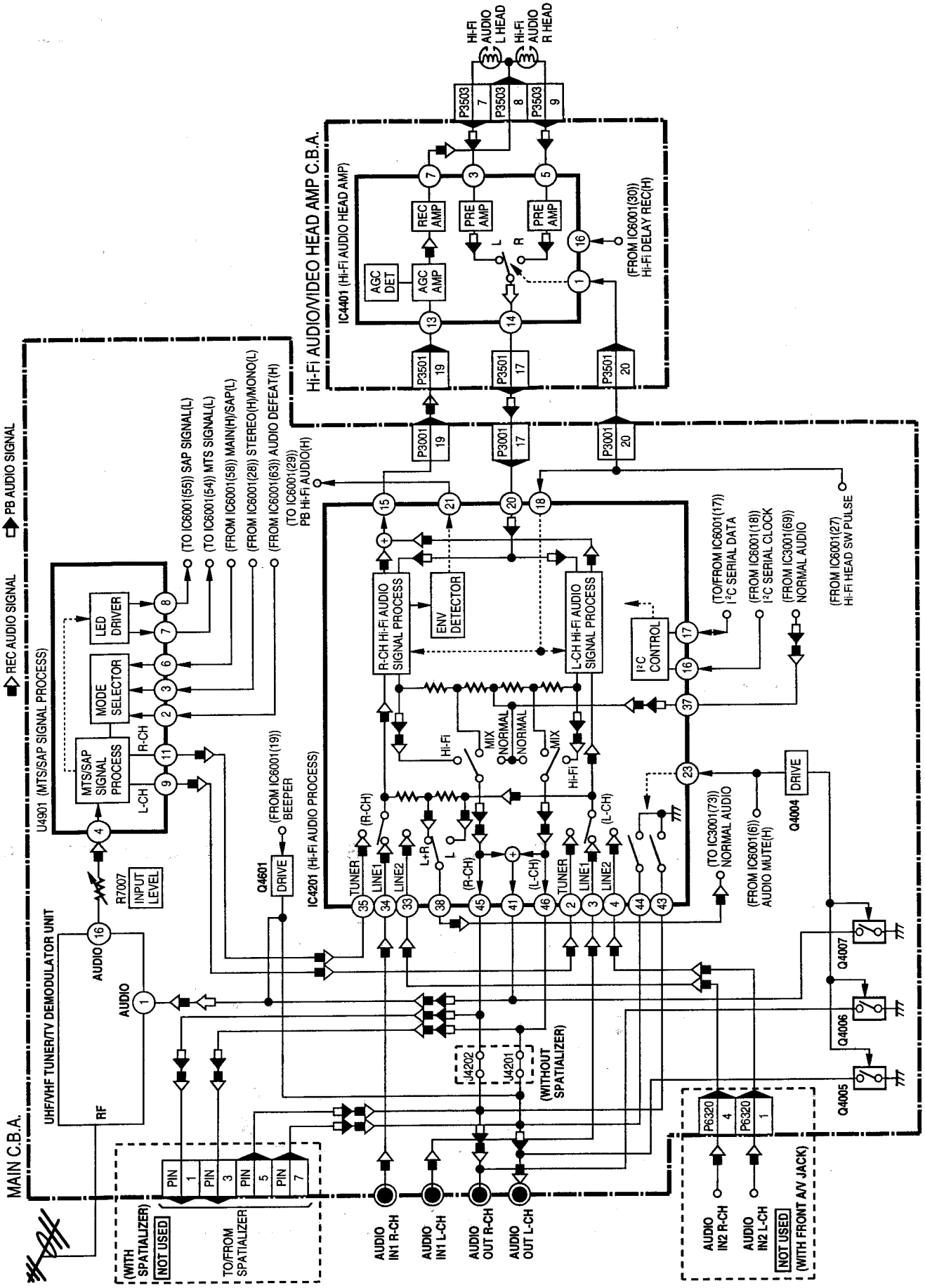
AUDIO SIGNAL PATH BLOCK DIAGRAM



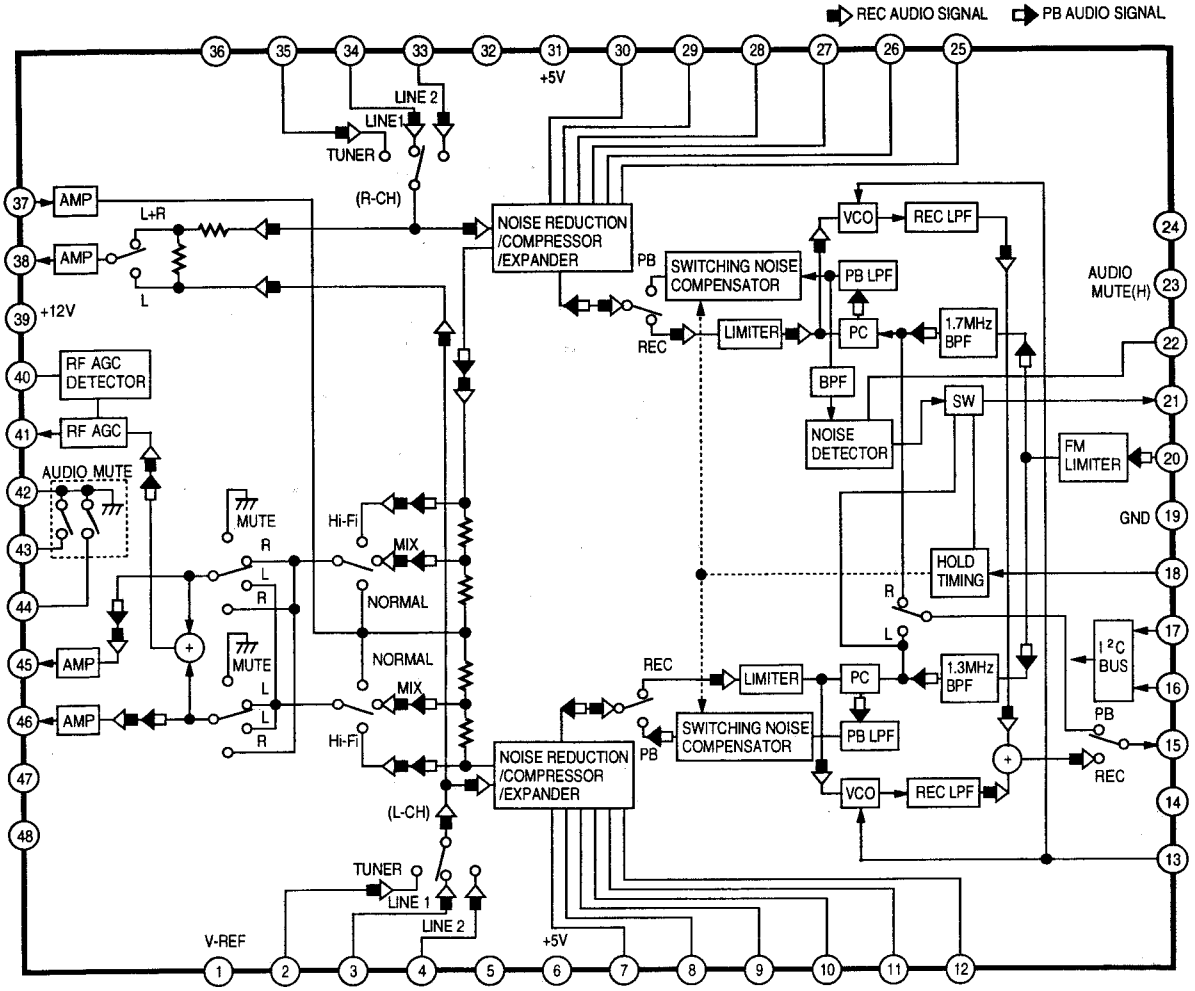
IC3001 VIDEO/AIDIO PROCESS IC-BLOCK DIAGRAM, AN3476FBP



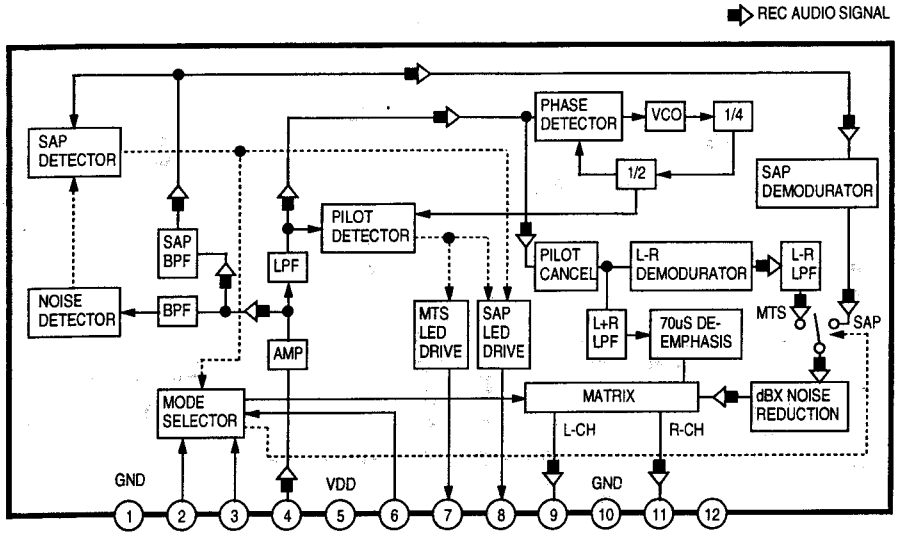
Hi-Fi AUDIO SIGNAL PATH BLOCK DIAGRAM



IC4201 Hi-Fi AUDIO PROCESS IC-BLOCK DIAGRAM, AN3962FB-V

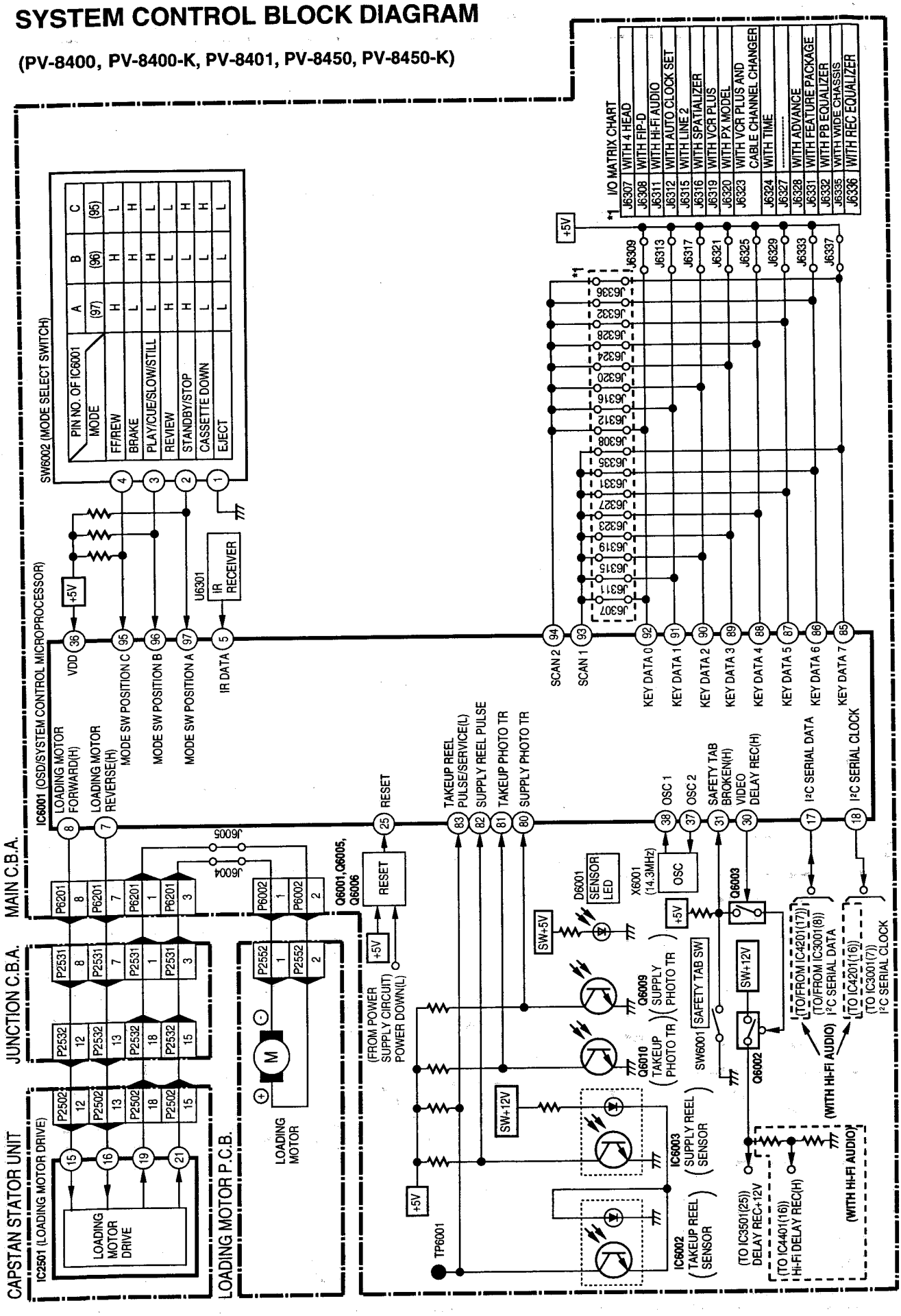


U4901 MTS/SAP AUDIO PROCESS IC-BLOCK DIAGRAM, VCRS0215

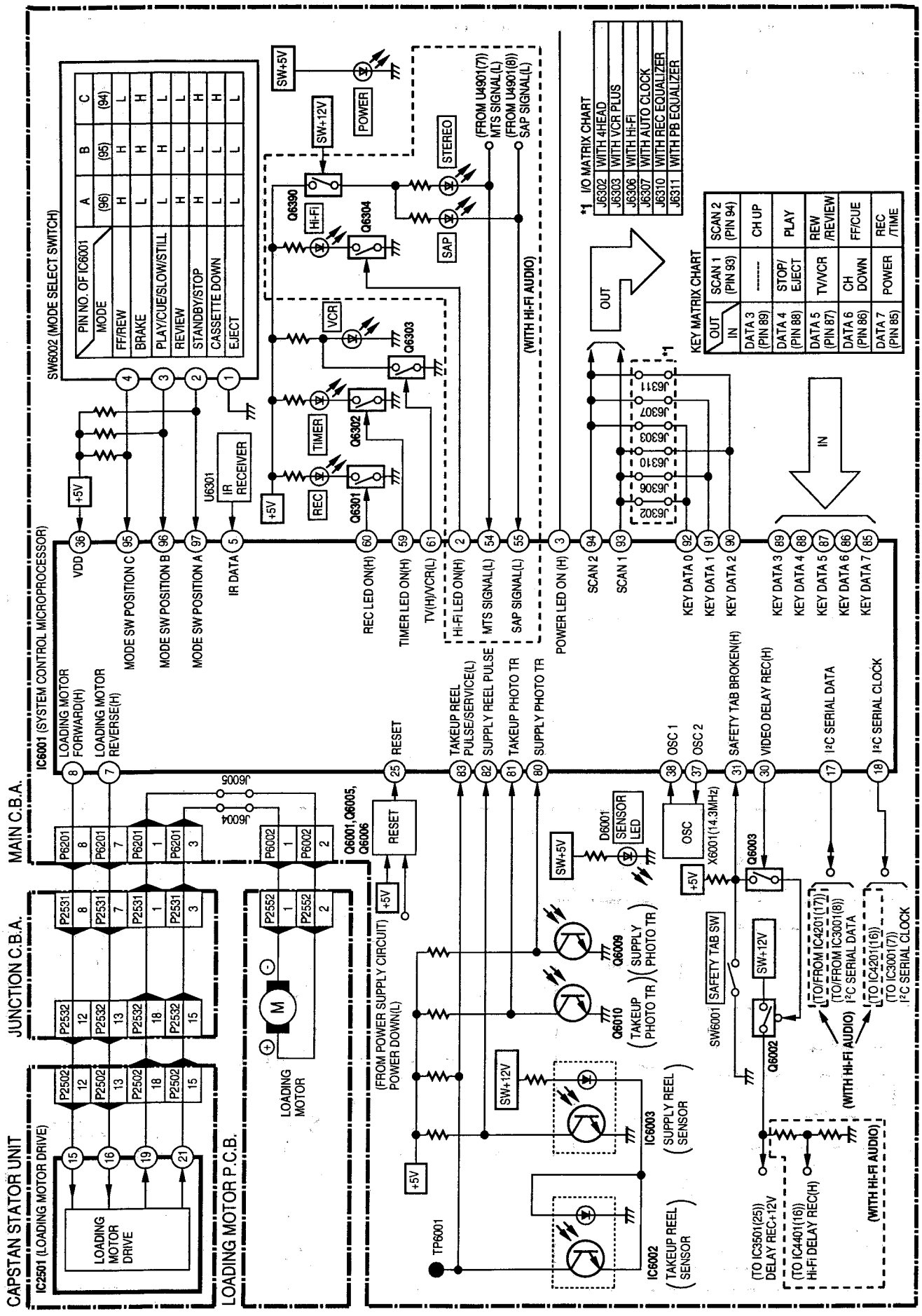


SYSTEM CONTROL BLOCK DIAGRAM

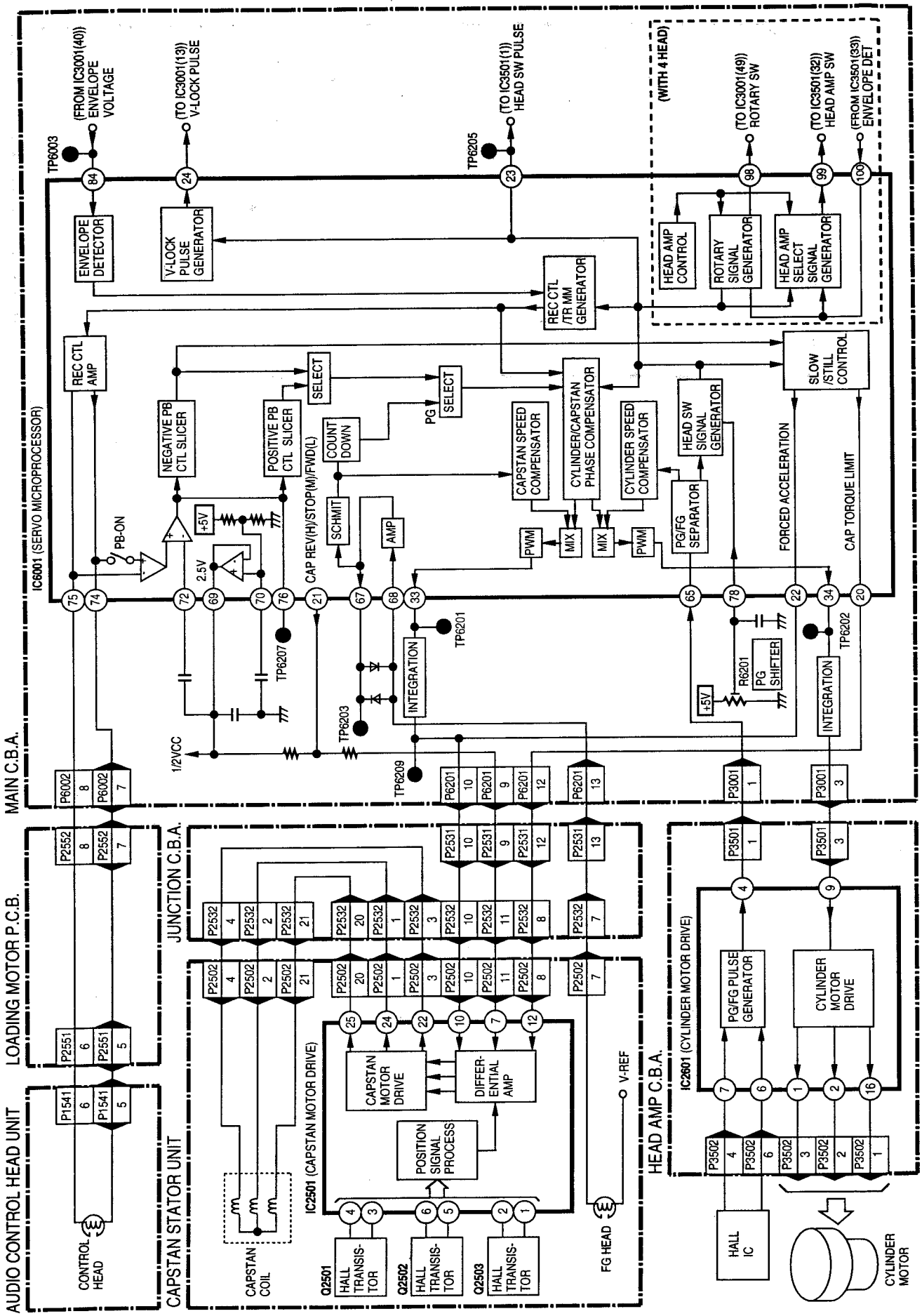
(PV-8400, PV-8400-K, PV-8401, PV-8450, PV-8450-K)



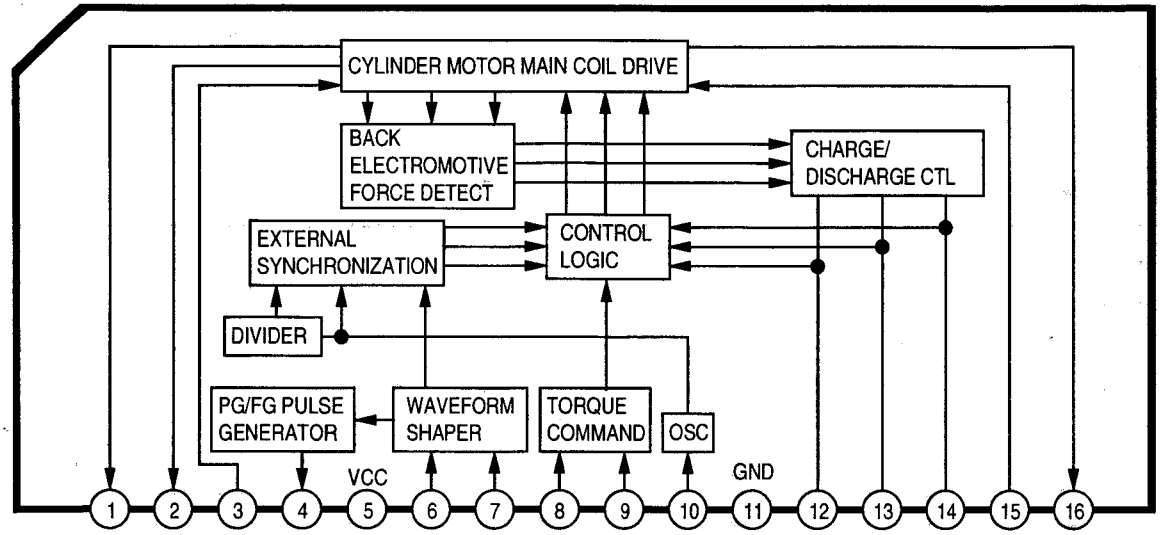
SYSTEM CONTROL BLOCK DIAGRAM (VHQ840, VHQ860)



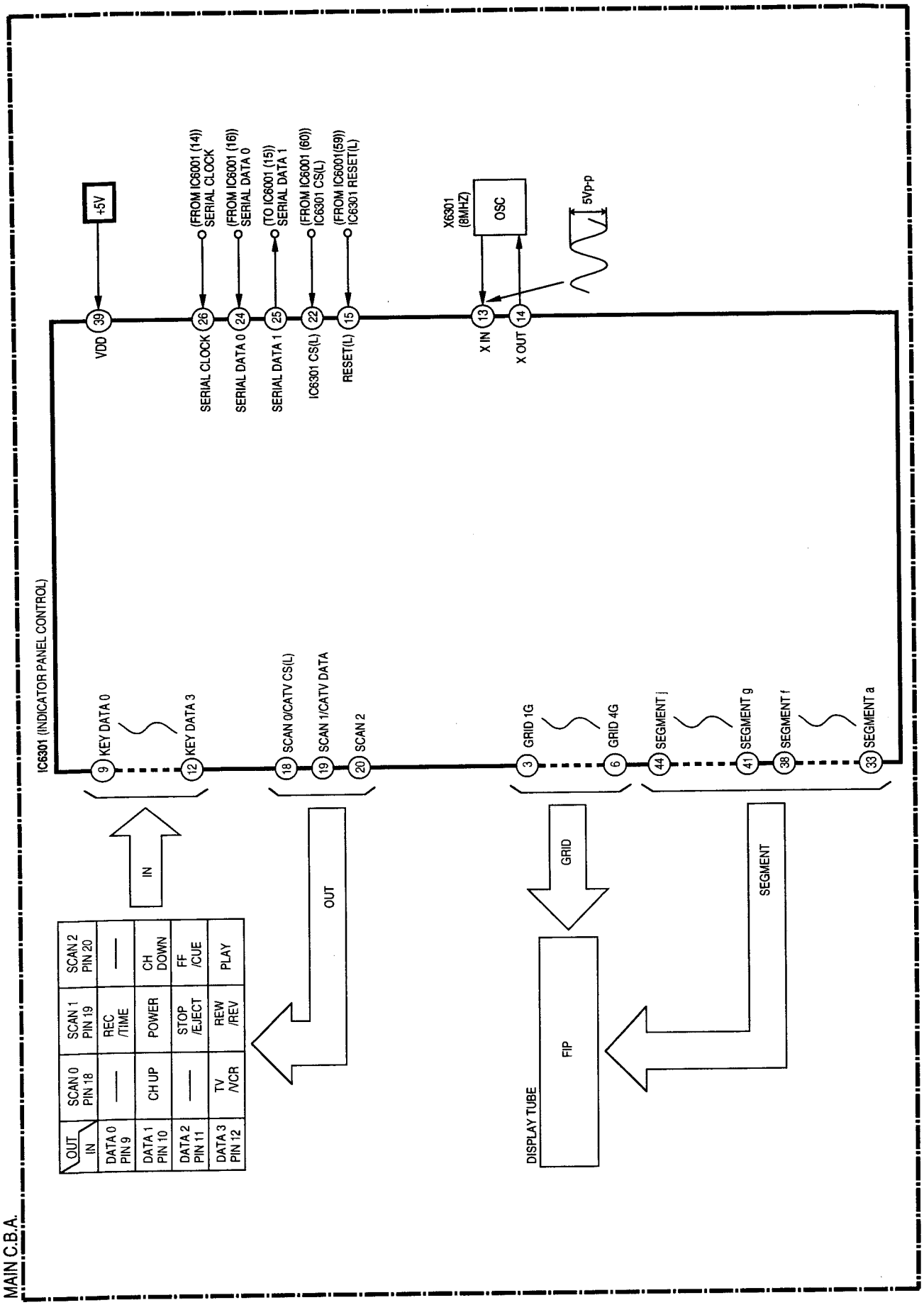
SERVO BLOCK DIAGRAM



IC2601 CYLINDER MOTOR DRIVE IC-BLOCK DIAGRAM, AN3809K



OPERATION BLOCK DIAGRAM



— MEMO —

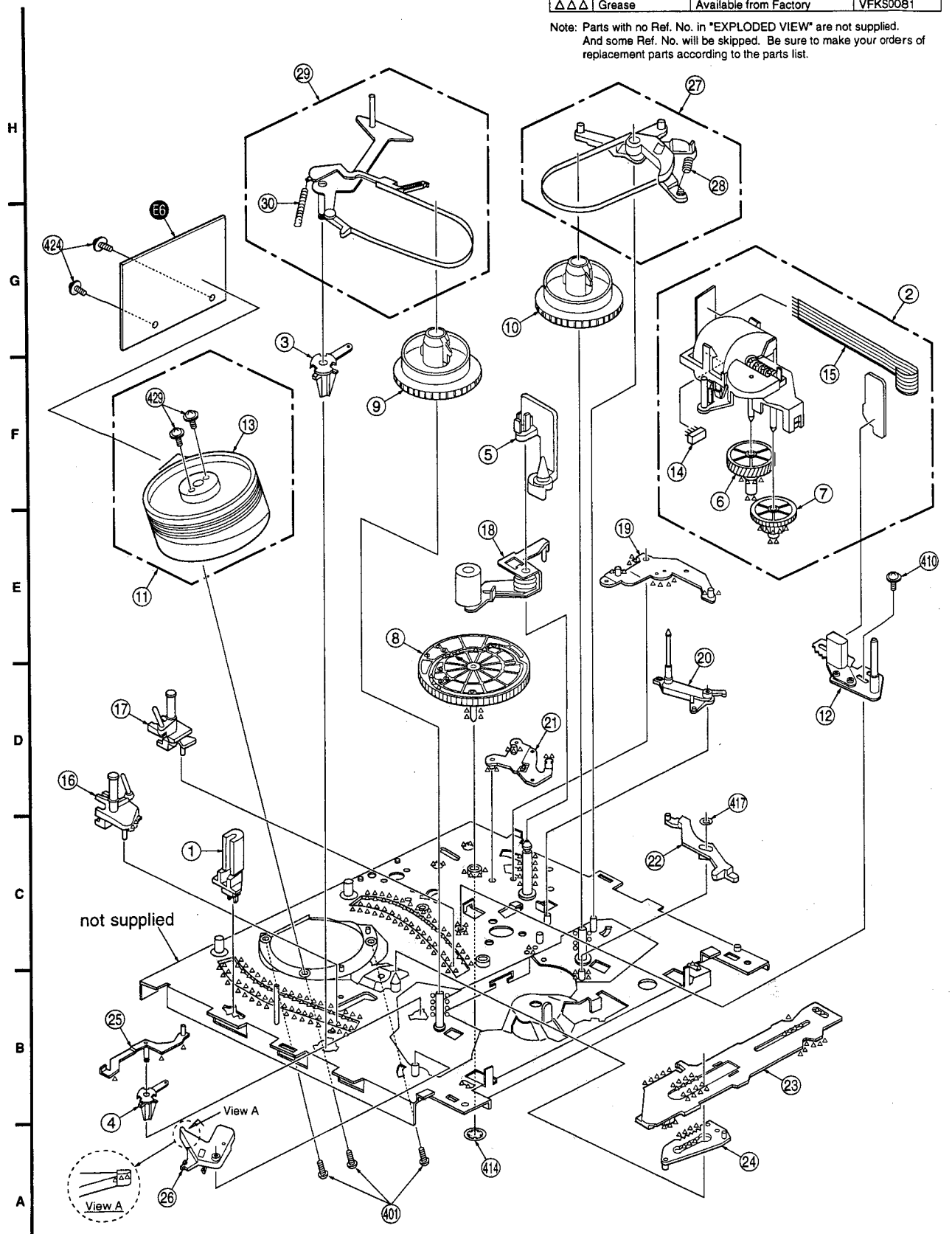
EXPLODED VIEWS

❶ MECHANISM (TOP) SECTION

LUBRICATION POINTS
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

Mark	Kind of Lubricant	Availability	Part Number
XXX	Silicon Grease	Available from Factory	VFK1301
OOO	Spindle Oil	Purchase from Local Supplier	- - - - - - - -
ΔΔΔ	Grease	Available from Factory	VFKS0081

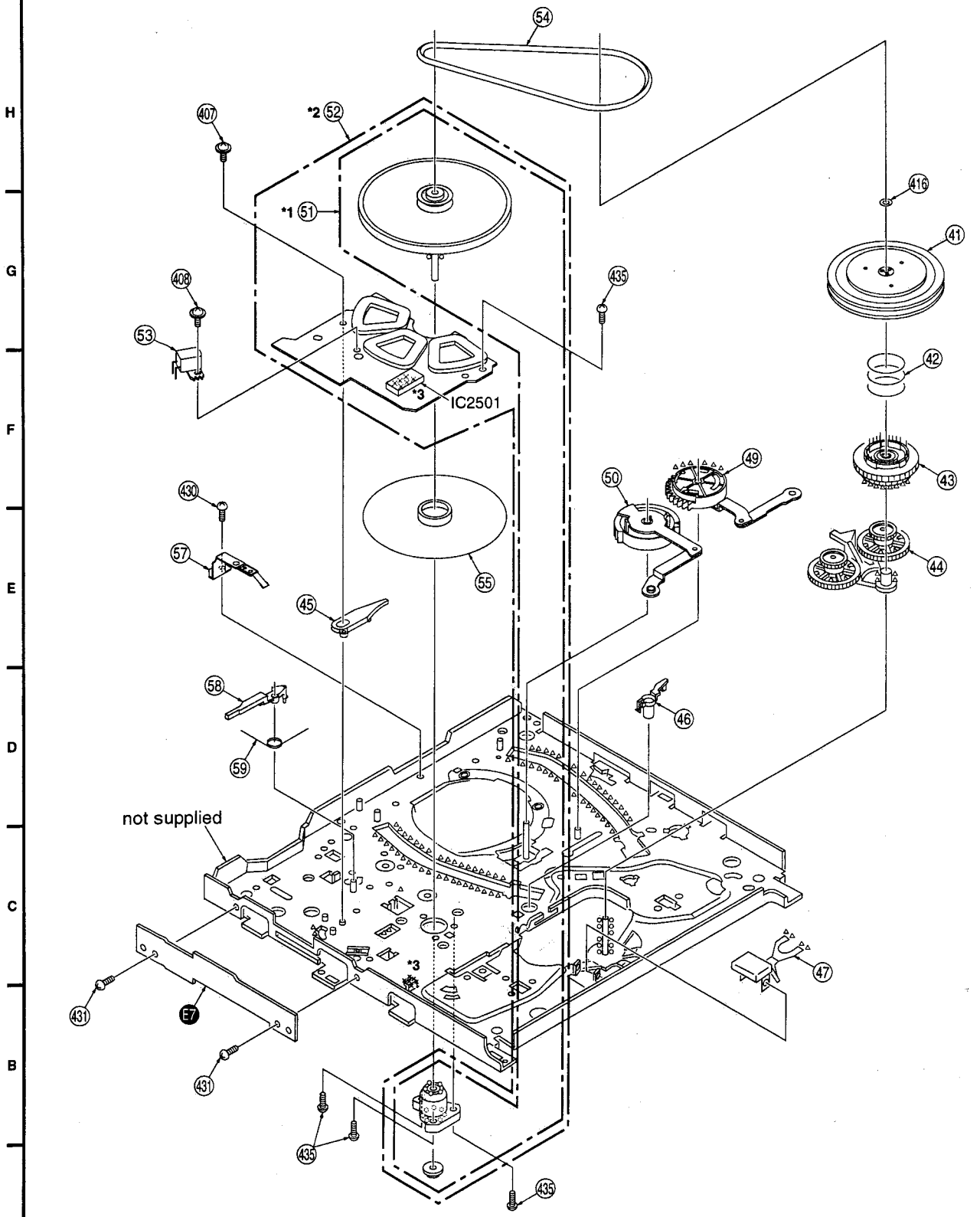
Note: Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.



❷ MECHANISM (BOTTOM) SECTION

LUBRICATION POINTS
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

Mark	Kind of Lubricant	Availability	Part Number
XXX	Silicon Grease	Available from Factory	VFK1301
OOO	Spindle Oil	Purchase from Local Supplier	- - - - - - - -
ΔΔΔ	Grease	Available from Factory	VFKS0081

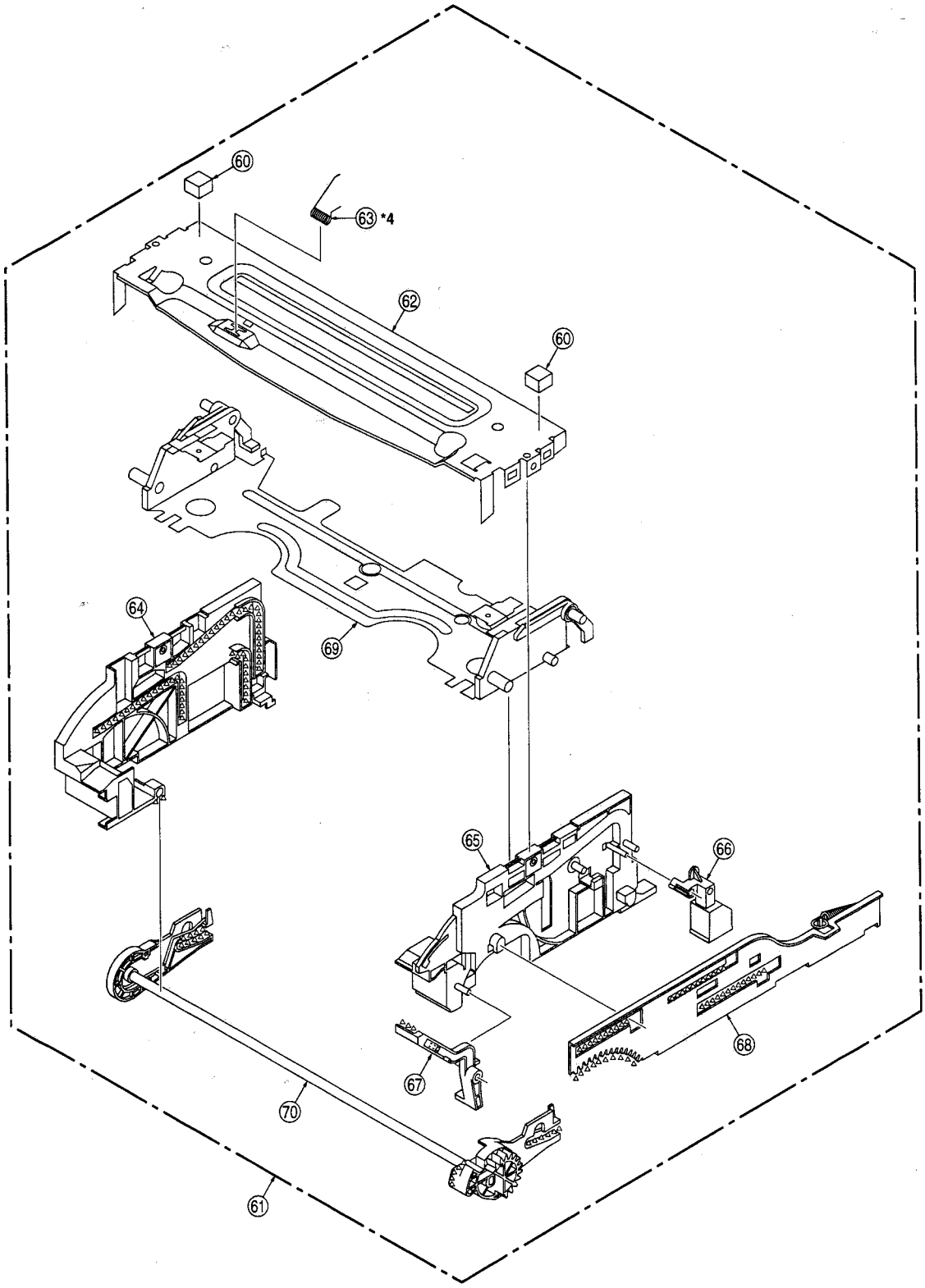


*1: Capstan Rotor Unit, Capstan Holder Unit, and Stopper are supplied as a Capstan Rotor Kit only.
*2: Capstan Stator Unit, Capstan Rotor Unit, Capstan Holder Unit, and Stopper are supplied as a Capstan Stator Kit only.
However, IC2501 (AN3845SC) is available separately as a replacement part.
*3: When installing the IC2501 or Capstan Stator Unit, be sure to apply Silicon Grease (VFK1301).
Refer to "Capstan Stator Unit" of "Disassembly/Assembly Procedures of Mechanism" section for more information.

❸ CASSETTE UP COMPARTMENT SECTION

LUBRICATION POINTS
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

Mark	Kind of Lubricant	Availability	Part Number
XXX	Silicon Grease	Available from Factory	VFK1301
OOO	Spindle Oil	Purchase from Local Supplier	- - - - - - - -
△△△	Grease	Available from Factory	VFKS0081



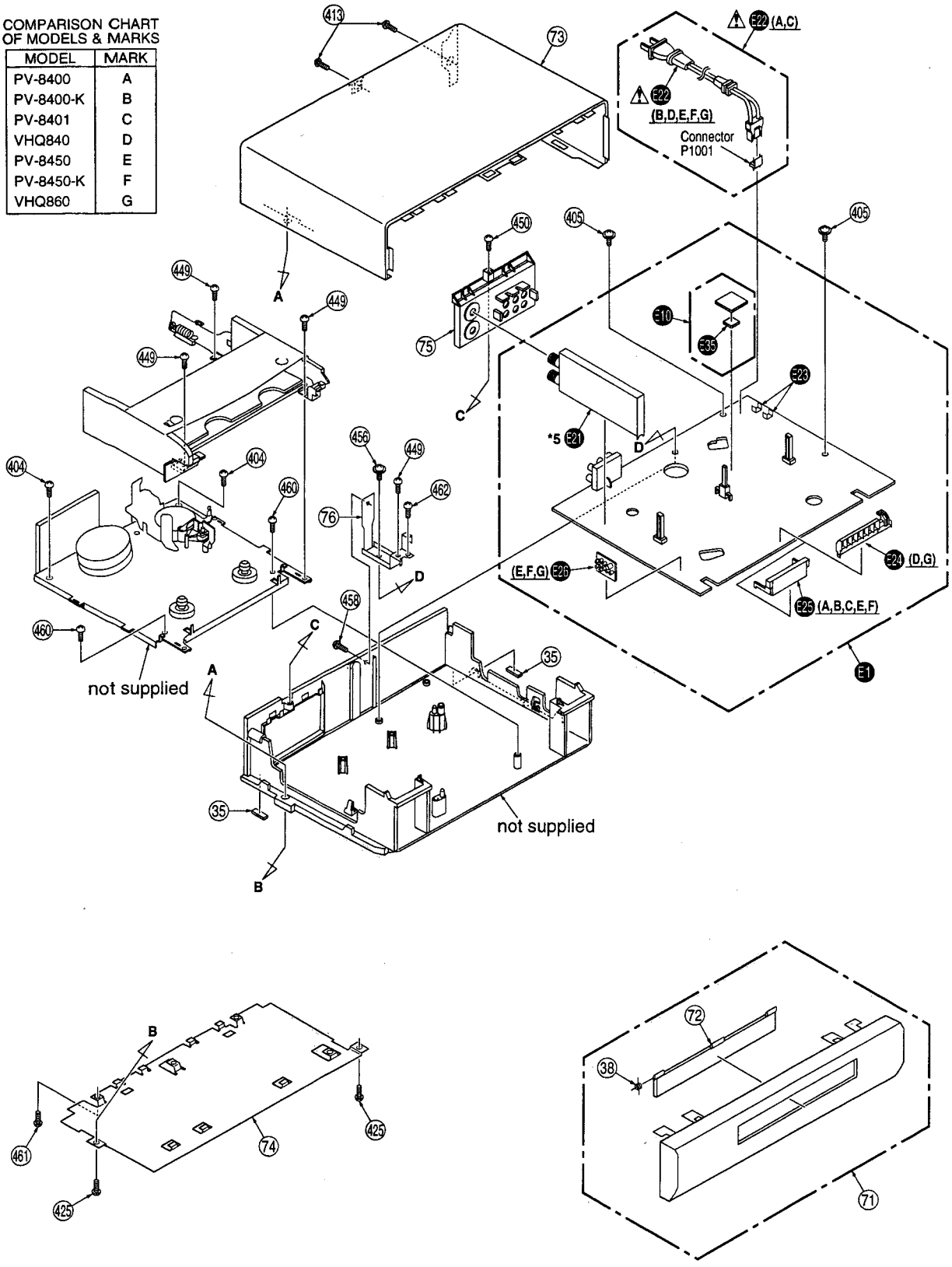
*4: As an ESD Countermeasure, the spring should be installed in the proper position.
Please refer to Disassembly/Assembly Procedure of Mechanical Section for more information.

❹ CHASSIS FRAME AND CASING PARTS SECTION

IMPORTANT SAFETY NOTICE
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

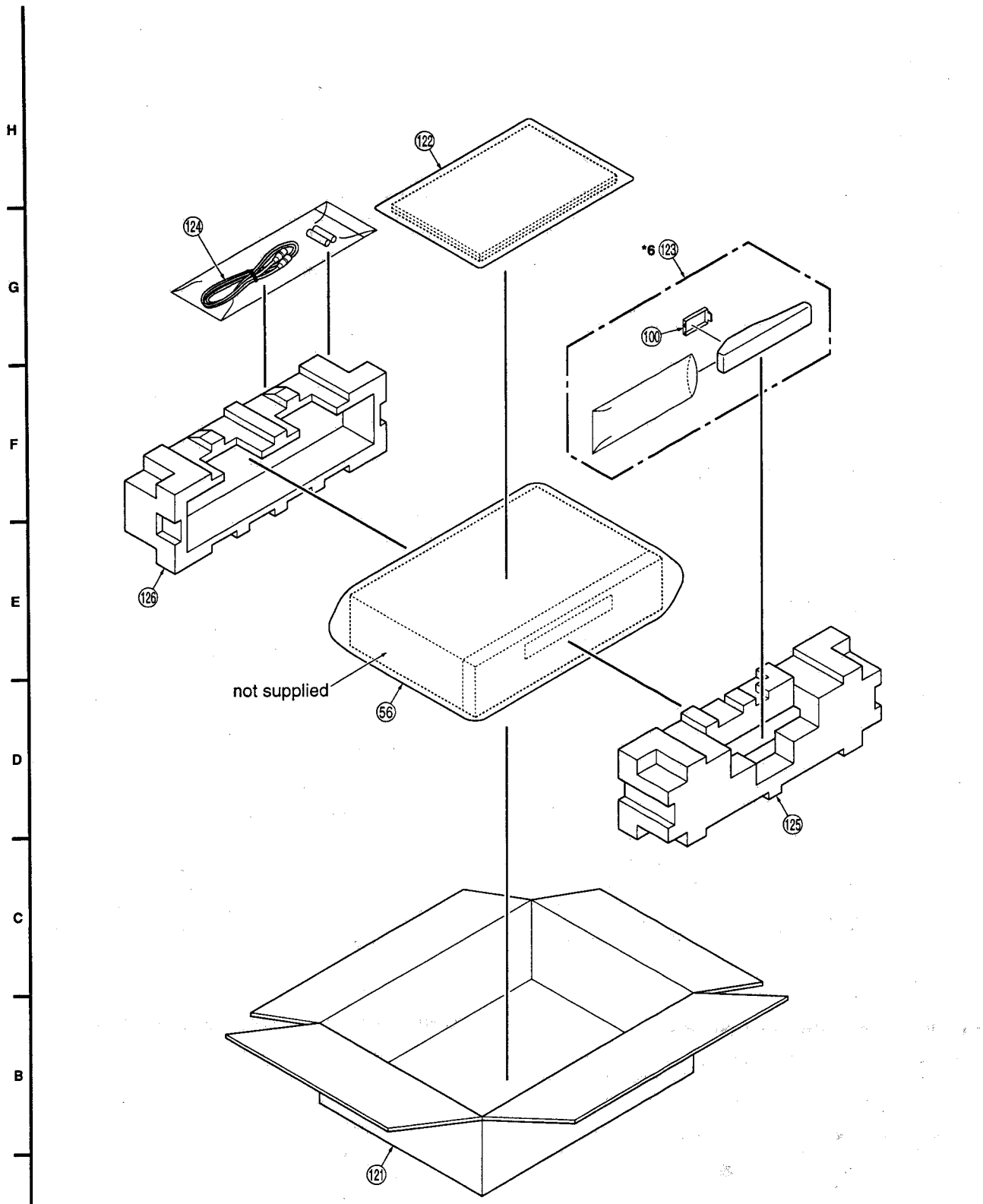
COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-8400	A
PV-8400-K	B
PV-8401	C
VHQ840	D
PV-8450	E
PV-8450-K	F
VHQ860	G



*5: Since the UHF/VHF TUNER/TV DEMODULATOR UNIT has already been pre-adjusted at the factory, do not try to adjust the UHF/VHF TUNER/TV DEMODULATOR UNIT. The UHF/VHF TUNER/TV DEMODULATOR UNIT replacement part is available as a complete assembly unit only.

❺ PACKING PARTS AND ACCESSORIES SECTION



*6: The Infrared Remote Control Unit replacement part is available as a complete assembly unit only.
Do not try to disassemble the Infrared Remote Control Unit. However, the battery cover is available separately as a replacement part.

REPLACEMENT PARTS LISTS

BEFORE REPLACING PARTS, READ THE FOLLOWING:

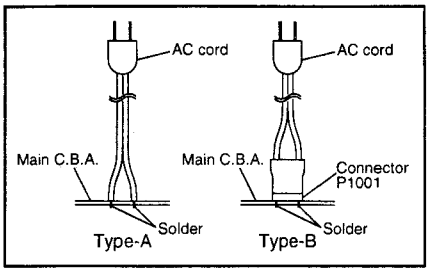
1. Use only original replacement parts:
   To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list.
2. **IMPORTANT SAFETY NOTICE**
   Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components, use only the specified parts.
3. SPECIAL NOTE
   All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this service manual.
4. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
5. Parts different in shape or size may be used. However, only interchangeable parts will be supplied as service replacement parts.
6. The parts which "AKEI" is indicated in Remarks column will be supplied from AKEI factory.

Mechanical Replacement Notes

1. Section No. of parts shown in Exploded Views are indicated in the Remarks column.
2. Capstan Rotor Unit, Capstan Holder Unit, and Stopper are supplied as Capstan Rotor Kit (Ref No. 51) only.
3. Capstan Stator Unit, Capstan Rotor Unit, Capstan Holder Unit, and Stopper are supplied as a Capstan Stator Kit (Ref No. 52) only. However, IC2501 (AN3845SC) is available separately as a replacement part. When installing the IC2501 or Capstan Stator unit, be sure to apply Silicon Grease (VFK1301). Refer to "Capstan Stator Unit" of "DISASSEMBLY/ASSEMBLY PROCEDURES OF MECHANISM" section.
4. Since the UHF/VHF TUNER/TV DEMODULATOR UNIT (Ref No. E21) has already been pre-adjusted at the factory, do not try to adjust the UHF/VHF TUNER/TV DEMODULATOR UNIT. The UHF/VHF TUNER/TV DEMODULATOR UNIT replacement part is available as a complete assembly unit only.
5. The Infrared Remote Control Unit (Ref No. 123) replacement part is available as a complete assembly unit only. Do not try to disassemble the Infrared Remote Control Unit. However, the battery cover is available separately as a replacement part.
6. Cut Washers (Ref No. 416 and 417) are not reusable. If removed, install a new one.
7. Main Cam Push Nut (Ref No. 414) is not reusable. If removed, install a new one.

Electrical Replacement Notes

1. Item numbers with capital letter E (Example: E1, E2,...) in the Ref. No. column are shown in the exploded views. The E item numbers are also printed on the same page at the top of the column.
2. The parts with "■" mark are supplied individually or as a unit. The parts with "▲" mark are supplied individually or as a unit, and are included in "■" parts listed directly above in the parts list.
3. Unless otherwise specified;
   All resistors are in ohms, 1/4W, +/-5%, carbon,
   K = 1,000 ohm, M = 1,000 kohm.
   All capacitors are in microfarads, P = micromicrofarad, +/-10%.
   All coils are in microhenries, M = 1,000 microhenry, +/-10%.
4. Abbreviation
   RTL: Retention Time Limited
   This indicates that the retention time is limited for this item. After the discontinuation of this item in production, it will no longer be available.
   NR: Non Repairable Board Ass'y
   MGF CHIP: Metal Glaze Film Chip
   C CHIP: Ceramic Chip
   COMPLX CMP: Complex Component
   W FLMPRF: Wirewound Flameproof
   C.B.A.: Circuit Board Assembly
   P.C.B.: Printed Circuit Board
   E.S.D.: Electrostatically Sensitive Devices
5. SERVICE OF CHIP PARTS
   When servicing chip parts, please use a soldering iron of less than 30 watts. Refer to "IC, TRANSISTOR AND CHIP PART INFORMATION" page.
6. The parts with "●" are 0 ohm resistor. When replacing, a wire can be substituted for a 0 ohm resistor.
7. IC6301 replacement note:
   The manufacturing part number is TMP47C216FF917. However, to order the part, use service order part number T47C216FF917.
8. AC cord replacement note
   for models PV-8400 and PV-8401:
   Either Type-A or B is used as a AC cord for these models. However, for parts standardization and interchangeability, Type-B will be supplied with Connector P1001 as a kit (Part No.: VJAS0195-FS) for replacement. When replacing AC cord on products using Type-A, connect Connector P1001 to Main C.B.A. with solder and connect AC cord to Connector P1001.



9. Main C.B.A. replacement note
   for models PV-8400 and PV-8401:
   VEPS6040GA or VEPS6040GF for PV-8400, VEPS6040GB or VEPS6040GG for PV-8401 are used as their Main C.B.A. However, for parts standardization, only VEPS6040GA for PV-8400 and VEPS6040GB for PV-8401 are supplied as a replacement. Please note that VEPS6040GA and VEPS6040GF, VEPS6040GB and VEPS6040GG are interchangeable. Only interchangeable part is supplied as a replacement.

COMPARISON CHART OF MODELS & MARKS

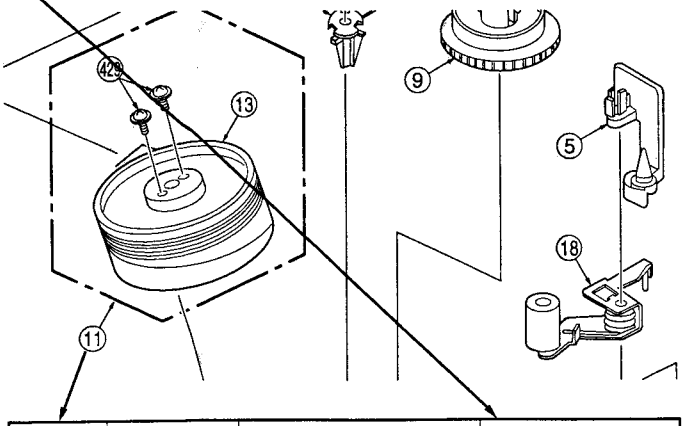
MODEL	MARK
PV-8400	A
PV-8400-K	B
PV-8401	C
VHQ840	D
PV-8450	E
PV-8450-K	F
VHQ860	G

MECHANICAL REPLACEMENT PARTS LIST

<The complete Exploded Views are shown in this manual.>

EXPLODED VIEWS

❶ MECHANISM (TOP) SECTION



Ref. No.	Part No.	Part Name	Remarks
		MECHANISM PARTS ON CHASSIS	
			(Section No.)
1	VBSS0032	FULL ERASE HEAD	1
2	VXKS0867	MOTOR BLOCK ASS'Y	1
	OR VXKS0876		
3	VDBS0349	TENSION ARM BOSS	1
4	VDBS0351	S BRAKE ARM BOSS	1
5	VMDS0971	OPENER PIECE	1
6	VDGS0428	WORM WHEEL GEAR	1
7	VDGS0429	INTERMEDIATE GEAR	1
8	VDGS0430	MAIN CAM GEAR	1
9	VDRS0056	S REEL TABLE	1
10	VDRS0057	T REEL TABLE	1
11		CYLINDER UNIT	
	VEGS0397	(A,B,C,D)	1
	VEGS0399	(E,F,G)	1
12	VEHS0559	AUDIO CONTROL HEAD UNIT	1 AKEI
13		UPPER CYLINDER UNIT	
	VEHS0561	(A,B,C,D)	1
	OR VEHS0554		
	VEHS0562	(E,F,G)	1
	OR VEHS0555		
14	VJSS0882	CONNECTOR 8P	1
15	VJWS6LB100LL	COMMU CABLE W/OUT PLUG	1
16	VXDS0198	LOADING POST BASE-S UNIT	1
17	VXDS0195	LOADING POST BASE-T UNIT	1
18	VXLS1078	PINCH ARM UNIT	1
19	VMLS0978	MAIN LEVER DRIVE ARM	1
20	VXLS1063	P5 ARM UNIT	1
21	VMLS0976	DRIVE RACK ARM	1
22	VMLS0972	CHANGING LEVER A	1
23	VMLS0977	MAIN LEVER	1
24	VXLS1072	LOADING RACK UNIT	1
25	VXLS1061	S BRAKE ARM UNIT	1
26	VMLS0982	S SPRING ARM	1
27	VXLS1062	T BRAKE UNIT	1
28	VMBS1150	T BRAKE SPRING	1
29	VXLS1074	TENSION ARM UNIT	1
30	VMBS1164	TENSION SPRING	1
35	VKAS0047	RUBBER FOOT	4
38	VMBS1161	CASSETTE DOOR SPRING	4
41	VXPS0379	CENTER CLUTCH UNIT	2
42	VMBS1151	CHANGING GEAR SPRING	2
43	VDGS0425	CHANGING GEAR	2
44	VXLS1053	IDLER ARM UNIT	2
45	VMDS0985	PCB HOLDER	2
46	VMDS0982	MAIN LEVER GUIDE	2

Ref. No.	Part No.	Part Name	Remarks
47	VMLS0973	CHANGING LEVER B	2
49	VXLS1054	S LOADING ARM UNIT	2
50	VXLS1056	T LOADING ARM UNIT	2
51	VXPS0382K2	CAPSTAN ROTOR KIT	2
52	VEMS0316K2	CAPSTAN STATOR KIT	2
53	VBKS0040	FG HEAD	2
54	VDVS0087	CAPSTAN BELT SQUARE, ELASTOMER	2
		2MM	
55	VMAS2135	SUB ROTOR	2
56	VPFS0095	SHEET, POLYETHYLENE	5
57	VXBS0061	GROUNDING PLATE UNIT	2
58	VXLS1070	SS BRAKE ARM UNIT	2
59	VMBS1155	SS BRAKE SPRING	2
60	VMFS0311	CUSHION	3
61	VXYS1197	CASSETTE UP ASS'Y	3
62	VMAS2131	TOP PLATE	3
63	VMBS1159	GROUNDING SPRING	3
64	VMDS0990	SIDE PLATE L	3
65	VMDS0974	SIDE PLATE R	3
66	VMDS0979	SENSOR COVER	3
67	VMLS0987	OPENER LEVER	3
68	VXLS1064	DRIVE RACK UNIT	3
69	VXAS4404	HOLDER UNIT	3
70	VXLS1065	WIPER ARM UNIT	3
71		FRONT PANEL ASS'Y	
	VYPS6879	(A,B)	4
	VYPS6882	(C)	4
	VYPS6903	(D)	4
	VYPS6885	(E,F)	4
	VYPS6904	(G)	4
72		CASSETTE DOOR-LID UNIT	
	VYPS6881	(A,B,C)	4
	VYPS6884	(E,F)	4
		CASSETTE DOOR-LID	
	VGPS4269	(D)	4
	VGPS4270	(G)	4
73	VKMS2457	TOP COVER	4
74		BOTTOM PANEL	
	VKUS0271	(A,B,C,D)	4
	VKUS0270	(E,F,G)	4
75		REAR PANEL	
	VGPS4102	(A,B,C,D)	4
	VGPS4103	(E,F,G)	4
76	VMAS2136	CHASSIS ANGLE	4
100	VKFS2221	BATTERY COVER	5
121		PACKING CASE, PAPER	
	VPGS4311	(A)	5
	VPGS4321	(B)	5
	VPGS4312	(C)	5
	VPGS4316	(D)	5
	VPGS4313	(E)	5
	VPGS4322	(F)	5
	VPGS4317	(G)	5
122		FAN BAG	
	VQFS3412	(A)	5
	VQFS3449	(B,F)	5
	VQFS3413	(C)	5
	VQFS3437	(D,G)	5
	VQFS3409	(E)	5
123		INFRARED REMOTE CONTROL UNIT	
	VSQS1560	(A,B,C)	5
	VSQS1562	(D)	5
	VSQS1559	(E,F)	5
	VSQS1561	(G)	5
124	VJAS0196	VHF CONNECTING CABLE	5
125		FRONT CUSHION, STYROFOAM	
	VPNS0590	(A,B,C,E,F)	5
	VPNS0579	(D,G)	5
126	VPNS0580	REAR CUSHION, STYROFOAM	5

Ref. No.	Part No.	Part Name	Remarks
		SCREWS AND WASHERS	
401	VHDS0475	SCREW, STEEL	1
404	VHDS0472	SCREW, STEEL	4
405	VHDS0496	SCREW W/WASHER, STEEL	4
407	XYN26+C5	SCREW W/WASHER, STEEL	2
408	XYN2+J5FZ	SCREW W/WASHER, STEEL	2
410	VHDS0498	SCREW W/WASHER, STEEL	1
413	VHDS0293	SCREW, STEEL	4
414	VHNS0070	MAIN CAM PUSH NUT, STEEL	1
416	VMXS0922	CUT WASHER, NYLON	2
417	VMXS0865	CUT WASHER, NYLON	1
424	XYC26+SF6J	SCREW W/WASHER, STEEL	1
425	XTB3+12A	TAPPING SCREW, STEEL	4
429	VHDS0491	SCREW W/WASHER, STEEL	1
430	XTV26+6FFZJ	TAPPING SCREW, STEEL	2
431	XTV26+6FJ	TAPPING SCREW, STEEL	2
435	XSN26+4	SCREW, STEEL	2
449	VHDS0493	TAPPING SCREW, STEEL	4
450	VHDS0309	SCREW, STEEL	4
456	VHDS0497	SCREW W/WASHER, STEEL	4
458	XTV3+8J	TAPPING SCREW, STEEL	4
460	XTN4+12A	TAPPING SCREW, STEEL	4
461	VHDS0460	SCREW, STEEL	4
462	XTN4+15AR	TAPPING SCREW, STEEL	4
		SERVICE FIXTURES AND TOOLS	
	VFMS0003H6	VHS ALIGNMENT TAPE	
	VFKS0009	REEL TABLE HEIGHT FIXTURE	
	VFKS0010	POST ADJUSTMENT PLATE	
	VFKS0081	GREASE	
	VFK0329	POST ADJUSTMENT DRIVER	
	VFK1301	SILICON GREASE	
	VFK27	HEAD CLEANING STICK	
	VFK0330	H-POSITION ADJUSTMENT DRIVER	
	VUZS0002	EXTENSION CABLE KIT	
	VUVS0001	MODE SELECT SW ASS'Y	
	VUVS0002	EXTENSION CABLE -1	
	VUVS0003	EXTENSION CABLE -2	
		(FOR Hi-Fi MODEL)	
	VUVS0004	EXTENSION CABLE -2	
		(FOR 4 HEAD MODEL)	
	VUVS0005	EXTENSION CABLE -2	
		(FOR 2 HEAD MODEL)	
	VSCS2534	MAIN C.B.A. HOLDER	

ELECTRICAL REPLACEMENT PARTS LIST

(E1, E6, E7, E10)

Ref. No.	Part No.	Part Name	Remarks
		PRINTED CIRCUIT BOARD ASSEMBLY	
E1	VEPS6040GA	MAIN C.B.A.	■ E.S.D. RTL
	(A,B)		
E1	VEPS6040GB	MAIN C.B.A.	■ E.S.D. RTL
	(C)		
E1	VEPS6043GA	MAIN C.B.A.	■ E.S.D. RTL
	(D)		
E1	VEPS6040HA	MAIN C.B.A.	■ E.S.D. RTL
	(E)		
E1	VEPS6040HF	MAIN C.B.A.	■ E.S.D. RTL
	(F)		
E1	VEPS6043HA	MAIN C.B.A.	■ E.S.D. RTL
	(G)		
E10	VEPS0A55A	MAIN CHILD C.B.A.	▲ RTL
E6	VEPS5011A	HEAD AMP C.B.A.	■ RTL
	(A,B,C,D)		
E6	VEPS5010B	Hi-Fi AUDIO/VIDEO HEAD AMP C.B.A.	■ RTL
	(E,F,G)		
E7	VEPS0A25A	JUNCTION C.B.A.	■ RTL
		MAIN C.B.A.	■
		(A,B,C,E,F)	
		INTEGRATED CIRCUITS	
IC1001	PS2501-1-X	IC, LINEAR ERROR V. DET	⚠
	OR ON3131-R.KT	IC, LINEAR ERROR V. DET	⚠
	OR ON3131-S.KT	IC, LINEAR ERROR V. DET	⚠
IC3001	AN3476FBP	IC, LINEAR VIDEO/AUDIO PROCESS	
IC3101	MN3885S	IC, CCD 1H DELAY	E.S.D.
IC4201	AN3962FB-V	IC, LINEAR Hi-Fi AUDIO PROCESS	
	(E,F)		
IC6001	MN101D01GPA2	IC, 8BIT MICROPROCESSOR	E.S.D.
IC6002	CNA1801N	REEL SENSOR UNIT	
IC6003	CNA1801N	REEL SENSOR UNIT	
IC6301	T47C216FF917	IC, 4BIT MICROCONTROLLER	E.S.D.
		INDICATOR PANEL	
		TRANSISTORS	
Q1001	2SC4533LP.KT		⚠
	OR 2SC5130LF608		⚠
Q1002	2SD2259		
Q1003	2SD1819A(R,S)	CHIP	
Q1004	2SB709A	CHIP	
Q1005	2SB1218ARS	CHIP	
Q1051	2SD2159(T)		
	(A,B,C)		
	2SD2375(P,Q)		
	(E,F)		
Q1052	2SD601A	CHIP	
Q1053	2SD235800A	CHIP	
Q1056	2SD235800A	CHIP	
Q3001	2SB709A	CHIP	
Q4001	2SB1218ARS	CHIP	
Q4002	2SD1819A(R,S)	CHIP	
Q4003	2SD1819A(R,S)	CHIP	
Q4004	UN5115	CHIP	
Q4005	UN5215	CHIP	
	(E,F)		
Q4006	UN5215	CHIP	
Q4007	UN5215	CHIP	
	(E,F)		
Q4101	2SD601A	CHIP	
Q4601	2SD1819A(R,S)	CHIP	
	(E,F)		

Ref. No.	Part No.	Part Name	Remarks
Q6001	2SD1819A(R,S)	CHIP	
Q6002	2SB1218ARS	CHIP	
Q6003	2SD1819A(R,S)	CHIP	
Q6005	2SB709A	CHIP	
Q6006	2SD1819A(R,S)	CHIP	
Q6009	VEKS5522	PHOTO SENSOR UNIT	
Q6010	VEKS5522	PHOTO SENSOR UNIT	
		DIODES	
D1001	S1WBA40		⚠
	OR S1WBA60		⚠
D1002	ERA18-04V3		
D1003	ERA18-04V3		
D1005	ERA18-04V3		
D1006	RU2YXLFC1		
	(A,B,C)		
	RU3YXLFC1		
	(E,F)		
D1007	MA188		
	(A,B,C)		
	ERA18-04V3		
	(E,F)		
D1008	ERB81-004V1		
D1009	MA178		
	(A,B,C)		
	AK03V0		
	(E,F)		
D1011	MA4051N	ZENER 5.1V	
D1012	MA858		
D1013	MA165		
D1015	MA7180	ZENER 18V	⚠
	OR MA7180A-TR	ZENER 18V	⚠
	OR MA7180B-TR	ZENER 18V	⚠
D1016	MA165		
D1051	MA4100N	ZENER 10V	
D1052	MA165		
D1053	MA165		
D1056	ERA15-01V5		
D3004	MA4091-M	ZENER 9.1V	
D6001	VEKS5521	SENSOR LED UNIT	
D6002	MA165		
D6003	MA165		
D6007	MA165		
D6202	MA165		
D6203	MA165		
D6324	MA4068-M	ZENER 6.8V	
		RESISTORS	
R1001	VRESC2TK275T	+-10% 1/2W 2.7M	⚠
R1003	VRESE2TJ334	1/2W 330K	
R1004	ERG2SJW333E	METAL OXIDE 2W 33K	
R1005	ERG1SJW560E	METAL OXIDE 1W 56	
R1006	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R1007	ERDS2TJ101	100	
R1008	ERDS2TJ392	3.9K	
R1010	ERD25FYJ100T	10	⚠
R1011	ERD25FYJ100T	10	⚠
	(A,B,C)		
	ERD25FYJ4R7T	4.7	⚠
	(E,F)		
R1014	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R1015	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R1016	ERJ8GEYJ562V	MGF CHIP 1/8W 5.6K	
R1017	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R1018	ERJ6GEYJ183V	MGF CHIP 1/10W 18K	
R1019	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R1020	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R1022	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R1024	ERD2FCVG121T	+-2% 120	⚠
	(A,B,C)		
	ERD2FCVG330T	+-2% 33	⚠
	(E,F)		
R1025	VRESE2TJ150	1/2W 15	
R1051	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	

Ref. No.	Part No.	Part Name	Remarks
R1052	ERDS2TJ123	12K	
	(A,B,C)		
	ERDS2TJ153	15K	
	(E,F)		
R1053	ERDS2TJ153	15K	
	(E,F)		
R1057	ERDS2TJ331	330	
R1058	ERDS2TJ104	100K	
R1066	ERDS2TJ182	1.8K	
R1067	ERDS2TJ104	100K	
R1068	ERDS2T0	0	●
R3002	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R3003	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R3004	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R3005	ERDS2TJ101	100	
R3021	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R3022	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R3023	ERJ6GEYJ121V	MGF CHIP 1/10W 120	
R3027	ERJ6GEYJ681V	MGF CHIP 1/10W 680	
R3029	ERJ6GEYJ125V	MGF CHIP 1/10W 1.2M	
R3030	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3031	ERJ6GEYJ474V	MGF CHIP 1/10W 470K	
R3033	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R3034	ERJ6GEYJ121V	MGF CHIP 1/10W 120	
R3035	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3036	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R3041	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R3301	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3302	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R4001	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4002	ERJ6GEYJ334V	MGF CHIP 1/10W 330K	
R4003	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R4004	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R4005	ERJ6GEYJ225V	MGF CHIP 1/10W 2.2M	
R4006	ERJ6GEYJ681V	MGF CHIP 1/10W 680	
R4007	ERJ6GEYJ821V	MGF CHIP 1/10W 820	
R4008	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R4009	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
	(A,B,C)		
R4010	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
	(A,B,C)		
	ERJ6GEYJ123V	MGF CHIP 1/10W 12K	
	(E,F)		
R4011	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
	(A,B,C)		
	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
	(E,F)		
R4012	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R4013	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
	(A,B,C)		
R4014	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R4015	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R4016	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
	(A,B,C)		
	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
	(E,F)		
R4017	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
	(A,B,C)		
	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(E,F)		
R4018	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
	(A,B,C)		
R4027	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R4028	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R4101	ERJ6GEYJ184V	MGF CHIP 1/10W 180K	
R4102	ERJ6GEYJ393V	MGF CHIP 1/10W 39K	
R4103	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R4201	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
	(E,F)		
R4202	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
	(E,F)		
R4203	ERJ6GEYJ511V	MGF CHIP 1/10W 510	
	(E,F)		
R4204	ERJ6GEYJ511V	MGF CHIP 1/10W 510	
	(E,F)		
R4205	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
	(E,F)		

Ref. No.	Part No.	Part Name	Remarks
R4206	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
	(E,F)		
R4207	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
	(E,F)		
R4208	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
	(E,F)		
R4213	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
	(E,F)		
R4214	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
	(E,F)		
R4215	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
	(E,F)		
R4216	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
	(E,F)		
R4217	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(E,F)		
R4218	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(E,F)		
R4219	ERJ6GEYJ683V	MGF CHIP 1/10W 68K	
	(E,F)		
R4220	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
	(E,F)		
R4221	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
	(E,F)		
R4222	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
	(E,F)		
R4240	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
	(E,F)		
R4241	ERA6YEB153V	MGF CHIP +-0.1% 1/10W 15K	
	(E,F)		
R4243	ERDS2TJ152	1.5K	
	(E,F)		
R4244	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
	(E,F)		
R4246	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
	(E,F)		
R4247	ERJ6GEYJ123V	MGF CHIP 1/10W 12K	
	(E,F)		
R4248	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
	(E,F)		
R4249	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(E,F)		
R4601	ERJ6GEYJ123V	MGF CHIP 1/10W 12K	
	(E,F)		
R4602	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
	(A,B,C)		
	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
	(E,F)		
R4604	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
	(E,F)		
R4605	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
	(E,F)		
R4606	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
	(E,F)		
R4607	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
	(E,F)		
R4608	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(A,B,C)		
R6001	ERDS2TJ101	100	
R6004	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
	(E,F)		
R6005	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
	(E,F)		
R6006	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6008	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
	(E,F)		
R6009	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(E,F)		
R6010	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6012	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6016	ERJ6GEYJ243V	MGF CHIP 1/10W 24K	
R6019	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6020	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6022	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R6023	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6024	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6025	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R6026	ERJ6GEYJ101V	MGF CHIP 1/10W 100	

Ref. No.	Part No.	Part Name	Remarks
R6027	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6029	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
	(E,F)		
R6031	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R6033	ERDS2TJ681	680	
R6034	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R6035	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6037	ERDS2TJ391	390	
R6038	ERDS2TJ560	56	
R6039	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6051	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6052	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6053	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6056	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6057	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6058	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6059	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6060	ERJ6GEYJ475V	MGF CHIP 1/10W 4.7M	
R6062	ERJ6GEYJ224V	MGF CHIP 1/10W 220K	
R6063	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R6064	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R6065	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6066	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6068	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6069	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6070	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6072	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6073	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6074	ERDS2TJ272	2.7K	
R6075	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6076	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6077	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6078	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6079	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6080	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6081	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6082	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6083	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6085	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6086	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6087	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6089	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6103	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6109	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6110	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6111	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
	(E,F)		
R6112	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
	(E,F)		
R6201	EVNGBAA01B24	VARIABLE 20K	
R6202	ERJ6GEYJ274V	MGF CHIP 1/10W 270K	
R6203	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6204	ERJ6GEYJ184V	MGF CHIP 1/10W 180K	
R6205	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6224	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6228	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R6230	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6316	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6346	ERDS2TJ470	47	
R6350	ERDS2TJ820	82	
R6351	ERDS2TJ750	75	
	(A,B,C)		
	ERDS2TJ820	82	
	(E,F)		
R6352	ERDS2TJ750	75	
	(A,B,C)		
	ERDS2TJ101	100	
	(E,F)		
R6353	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6358	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6359	VLQSH02R101K	100	
R7001	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
	(A,B,C)		
R7002	ERJ6GEYJ271V	MGF CHIP 1/10W 270	
R7004	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R7006	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7007	EVNGBAA01B24	VARIABLE 20K	
	(E,F)		

Ref. No.	Part No.	Part Name				Remarks
		CAPACITORS				
C1001	ECKNRS103ZVD	CERAMIC	+80%-20%	125V	0.01	⚠
	OR ECKNTS103MF8	CERAMIC	+-20%	125V	0.01	⚠
	OR VCKSTQG103ZY	CERAMIC	+80%-20%	125V	0.01	⚠
	OR VCKSUQD103MY	CERAMIC	+-20%	125V	0.01	⚠
C1002	ECKNNB332ME8	CERAMIC	+-20%	125V	3300P	⚠
	OR ECKNTS332ME8	CERAMIC	+-20%	125V	3300P	⚠
	OR VCKSTQG332MX	CERAMIC	+-20%	125V	3300P	⚠
	OR VCKSUQD332MX	CERAMIC	+-20%	125V	3300P	⚠
C1003	ECKNNB332ME8	CERAMIC	+-20%	125V	3300P	⚠
	OR ECKNTS332ME8	CERAMIC	+-20%	125V	3300P	⚠
	OR VCKSTQG332MX	CERAMIC	+-20%	125V	3300P	⚠
	OR VCKSUQD332MX	CERAMIC	+-20%	125V	3300P	⚠
C1004	ECEA2DU820YB	ELECTROLYTIC		200V	82	⚠
	OR VCESR2D820XB	ELECTROLYTIC		200V	82	⚠
	(A,B,C)					
	ECEA2DU121YB	ELECTROLYTIC		200V	120	⚠
	OR VCESR2D121XB	ELECTROLYTIC		200V	120	⚠
	(E,F)					
C1005	ECA2DHG4R7B	ELECTROLYTIC		200V	4.7	
C1006	ECKW2H221KB5	CERAMIC		500V	220P	
C1007	VCKSLZE224MB	CERAMIC	+-20%	25V	0.22	
C1009	ECQB1H183JF	POLYESTER	+-5%	50V	0.018	
C1010	ECUV1H101JCM	C CHIP	+-5%	50V	100P	
C1011	ECA1HM4R7B	ELECTROLYTIC		50V	4.7	
	(A,B,C)					
	ECEA1HGE4R7	ELECTROLYTIC		50V	4.7	
	(E,F)					
C1012	ECEA1PEE331	ELECTROLYTIC		18V	330	
C1013	ECA1EM331B	ELECTROLYTIC		25V	330	
C1014	ECEA1HGE4R7	ELECTROLYTIC		50V	4.7	
	(A,B,C)					
	ECEA1HGE470	ELECTROLYTIC		50V	47	
	(E,F)					
C1016	ECEA1PEE331	ELECTROLYTIC		18V	330	
C1017	ECA0JM102B	ELECTROLYTIC		6.3V	1000	
C1018	VCYSBRC104MX	CERAMIC	+-20%	16V	0.1	
C1019	ECEA0JEE101	ELECTROLYTIC		6.3V	100	
C1021	ECEA1HKG010	ELECTROLYTIC		50V	1	
C1023	ECKW1H103ZF5	CERAMIC	+80%-20%	50V	0.01	
C1025	ECKNRS101MBY	CERAMIC	+-20%	125V	100P	⚠
	OR ECKNTS101MB	CERAMIC	+-20%	125V	100P	⚠
	OR VCKSTNG101KW	CERAMIC		125V	100P	⚠
	OR VCKSUND101KW	CERAMIC		125V	100P	⚠
C1027	ECKNRS103ZVD	CERAMIC	+80%-20%	125V	0.01	⚠
	OR ECKNTS103MF8	CERAMIC	+-20%	125V	0.01	⚠
	OR VCKSTQG103ZY	CERAMIC	+80%-20%	125V	0.01	⚠
	OR VCKSUQD103MY	CERAMIC	+-20%	125V	0.01	⚠
C1028	ECEA1PEE331	ELECTROLYTIC		18V	330	
C1029	ECUV1H101JCN	C CHIP	+-5%	50V	100P	
C1030	VCYSBRE183KX	CERAMIC		25V	0.018	
C1032	ECEA0JKA221	ELECTROLYTIC		6.3V	220	
C1051	ECEA1HKAR47	ELECTROLYTIC		50V	0.47	
C1052	ECEA1CKA100	ELECTROLYTIC		16V	10	
C1058	ECEA0JEE101	ELECTROLYTIC		6.3V	100	
C1059	ECEA1CKA470	ELECTROLYTIC		16V	47	
C1061	ECUV1H102KBN	C CHIP		50V	1000P	
C3001	ECA0JM471	ELECTROLYTIC		6.3V	470	
C3002	ECUV1E104ZFN	C CHIP	+80%-20%	25V	0.1	
C3011	ECUV1H103KBN	C CHIP		50V	0.01	
C3014	ECUV1E104ZFN	C CHIP	+80%-20%	25V	0.1	
C3015	ECUV1E104ZFN	C CHIP	+80%-20%	25V	0.1	
C3017	ECEA1EKA4R7	ELECTROLYTIC		25V	4.7	
C3018	ECUV1H181JCN	C CHIP	+-5%	50V	180P	
C3019	ECUV1H560JCN	C CHIP	+-5%	50V	56P	
C3021	ECUV1C224ZFN	C CHIP	+80%-20%	16V	0.22	
C3022	ECUV1E104ZFN	C CHIP	+80%-20%	25V	0.1	
C3023	ECEA0JKA221	ELECTROLYTIC		6.3V	220	
C3024	ECEA0JKA470	ELECTROLYTIC		6.3V	47	
C3025	ECUV1H103ZFN	C CHIP	+80%-20%	50V	0.01	
C3026	ECUV1E104ZFN	C CHIP	+80%-20%	25V	0.1	
C3027	ECUV1C224ZFN	C CHIP	+80%-20%	16V	0.22	
C3028	ECEA1CKA100	ELECTROLYTIC		16V	10	
C3029	ECUV1E104ZFN	C CHIP	+80%-20%	25V	0.1	
C3030	ECEA0JKA221	ELECTROLYTIC		6.3V	220	
C3031	ECEA1HKA2R2	ELECTROLYTIC		50V	2.2	
C3032	ECEA1HKA2R2	ELECTROLYTIC		50V	2.2	

Ref. No.	Part No.	Part Name				Remarks
C3033	ECEA0JKA470	ELECTROLYTIC		6.3V	47	
C3034	ECEA1HKAR22	ELECTROLYTIC		50V	0.22	
C3035	ECUV1H560JCN	C CHIP	+-5%	50V	56P	
C3036	ECUV1E104ZFN	C CHIP	+80%-20%	25V	0.1	
C3037	ECEA0JKA220	ELECTROLYTIC		6.3V	22	
C3039	ECUV1H822KBN	C CHIP		50V	8200P	
C3043	ECUV1H103ZFN	C CHIP	+80%-20%	50V	0.01	
C3044	ECUV1C474ZFN	C CHIP	+80%-20%	16V	0.47	
C3045	ECUV1C474ZFN	C CHIP	+80%-20%	16V	0.47	
C3047	ECUV1H181JCN	C CHIP	+-5%	50V	180P	
C3048	ECUV1H560JCN	C CHIP	+-5%	50V	56P	
C3049	ECUV1E104ZFN	C CHIP	+80%-20%	25V	0.1	
C3050	ECUV1E104ZFN	C CHIP	+80%-20%	25V	0.1	
C3051	ECEA0JKA221	ELECTROLYTIC		6.3V	220	
C3052	ECUV1H103ZFN	C CHIP	+80%-20%	50V	0.01	
C3053	ECEA1HKAR47	ELECTROLYTIC		50V	0.47	
C3054	ECEA1HKA2R2	ELECTROLYTIC		50V	2.2	
C3055	ECUV1H392KBN	C CHIP		50V	3900P	
C3056	ECEA1HKA010	ELECTROLYTIC		50V	1	
C3057	ECUV1E104ZFN	C CHIP	+80%-20%	25V	0.1	
C3058	ECEA0JKA221	ELECTROLYTIC		6.3V	220	
C3059	ECUV1H020CCN	C CHIP	+-0.25P	50V	2P	
	(E,F)					
C3062	ECUV1E104ZFN	C CHIP	+80%-20%	25V	0.1	
C3101	ECEA1HKA010	ELECTROLYTIC		50V	1	
C3102	ECUV1E104ZFN	C CHIP	+80%-20%	25V	0.1	
C3104	ECUV1H103ZFN	C CHIP	+80%-20%	50V	0.01	
C3105	ECUV1H103ZFN	C CHIP	+80%-20%	50V	0.01	
C3106	ECUV1H103ZFN	C CHIP	+80%-20%	50V	0.01	
C3108	ECUV1H102KBN	C CHIP		50V	1000P	
C3109	ECEA0JKA221	ELECTROLYTIC		6.3V	220	
C3302	ECEA1HKA010	ELECTROLYTIC		50V	1	
C3303	ECUV1H390JCN	C CHIP	+-5%	50V	39P	
C3304	ECUV1E104ZFN	C CHIP	+80%-20%	25V	0.1	
C3306	ECEA1HKN010	ELECTROLYTIC		50V	1	
C3312	ECUV1H100CCN	C CHIP	+-0.25P	50V	10P	
C4001	ECUV1C224ZFN	C CHIP	+80%-20%	16V	0.22	
C4002	ECEA1HKA010	ELECTROLYTIC		50V	1	
C4003	ECUV1H392KBN	C CHIP		50V	3900P	
C4004	ECUV1H103KBN	C CHIP		50V	0.01	
C4005	ECEA0JKA220	ELECTROLYTIC		6.3V	22	
C4006	ECUV1H102KBN	C CHIP		50V	1000P	
C4007	ECEA0JKA220	ELECTROLYTIC		6.3V	22	
C4008	ECEA0JKA470	ELECTROLYTIC		6.3V	47	
C4009	ECEA1CKA100	ELECTROLYTIC		16V	10	
C4010	ECUV1E273KBN	C CHIP		25V	0.027	
C4011	ECUV1H822KBN	C CHIP		50V	8200P	
C4012	ECEA1HKA010	ELECTROLYTIC		50V	1	
C4013	ECEA0JKA470	ELECTROLYTIC		6.3V	47	
C4014	ECEA1HKA010	ELECTROLYTIC		50V	1	
C4017	ECUV1H103KBN	C CHIP		50V	0.01	
	(E,F)					
C4018	ECEA1HKA010	ELECTROLYTIC		50V	1	
	(A,B,C)					
C4020	ECUV1H102KBN	C CHIP		50V	1000P	
C4101	ECUV1H221JCN	C CHIP	+-5%	50V	220P	
C4102	ECQB1562JF	POLYESTER	+-5%	200V	5600P	
C4103	ECUV1H103KBN	C CHIP		50V	0.01	
C4104	ECUV1H103KBN	C CHIP		50V	0.01	
C4106	ECEA1CKA220	ELECTROLYTIC		16V	22	
C4201	ECUV1E473KBN	C CHIP		25V	0.047	
	(E,F)					
C4202	ECUV1E473KBN	C CHIP		25V	0.047	
	(E,F)					
C4203	ECEA0JKA330	ELECTROLYTIC		6.3V	33	
	(E,F)					
C4204	ECEA0JKA330	ELECTROLYTIC		6.3V	33	
	(E,F)					
C4205	ECEA1HKA2R2	ELECTROLYTIC		50V	2.2	
	(E,F)					
C4206	ECEA1HKA2R2	ELECTROLYTIC		50V	2.2	
	(E,F)					
C4207	ECEA0JKA101	ELECTROLYTIC		6.3V	100	
	(E,F)					
C4208	ECEA0JKA101	ELECTROLYTIC		6.3V	100	
	(E,F)					
C4209	ECUV1H153KBN	C CHIP		50V	0.015	
	(E,F)					

Ref. No.	Part No.	Part Name	Remarks
C4210	ECUV1H153KBN	C CHIP 50V 0.015	
	(E,F)		
C4211	ECUV1H103KBN	C CHIP 50V 0.01	
	(E,F)		
C4212	ECUV1H103KBN	C CHIP 50V 0.01	
	(E,F)		
C4213	ECEA1HKA010	ELECTROLYTIC 50V 1	
	(E,F)		
C4214	ECEA1HKA010	ELECTROLYTIC 50V 1	
	(E,F)		
C4217	ECEA1HKA010	ELECTROLYTIC 50V 1	
	(E,F)		
C4218	ECEA1HKA010	ELECTROLYTIC 50V 1	
	(E,F)		
C4219	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(E,F)		
C4220	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(E,F)		
C4229	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
	(E,F)		
C4235	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(E,F)		
C4236	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
	(E,F)		
C4237	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(E,F)		
C4238	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(E,F)		
C4239	ECEA1HKA010	ELECTROLYTIC 50V 1	
	(E,F)		
C4240	ECUV1C224ZFN	C CHIP +80%-20% 16V 0.22	
	(E,F)		
C4242	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
	(E,F)		
C4601	ECUV1C224ZFN	C CHIP +80%-20% 16V 0.22	
	(E,F)		
C4603	ECUV1C224ZFN	C CHIP +80%-20% 16V 0.22	
C4606	ECUV1C224ZFN	C CHIP +80%-20% 16V 0.22	
	(E,F)		
C6003	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6005	ECUV1H150JCN	C CHIP +-5% 50V 15P	
C6006	ECUV1H120JCN	C CHIP +-5% 50V 12P	
C6012	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6016	ECEA0JU471	ELECTROLYTIC 6.3V 470	
C6017	ECUV1H101JCN	C CHIP +-5% 50V 100P	
C6019	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C6025	ECUV1H101JCN	C CHIP +-5% 50V 100P	
C6026	ECUV1H102KBN	C CHIP 50V 1000P	
C6201	ECUV1H102KBN	C CHIP 50V 1000P	
C6203	ECUV1H103KBN	C CHIP 50V 0.01	
C6207	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6208	ECEA1HKA010	ELECTROLYTIC 50V 1	
C6213	ECUV1H151KN	C CHIP 50V 150P	
C6214	ECUV1H102KBN	C CHIP 50V 1000P	
C6217	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6218	ECEA1CKA100	ELECTROLYTIC 16V 10	
C6221	ECEA0JKA220	ELECTROLYTIC 6.3V 22	
C6222	ECUV1H272KBN	C CHIP 50V 2700P	
C6223	ECUV1H103KBN	C CHIP 50V 0.01	
C6224	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C6228	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6305	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C6306	ECA0JM471	ELECTROLYTIC 6.3V 470	
C6307	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6308	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C7001	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C7003	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C7005	ECUV1E183KBN	C CHIP 25V 0.018	
	(A,B,C)		
C7006	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C7007	ECUV1E104KBN	C CHIP 25V 0.1	
C7008	ECEA1CKA101	ELECTROLYTIC 16V 100	
C7010	ECUV1H102KBN	C CHIP 50V 1000P	
C7011	ECUV1H820JCN	C CHIP +-5% 50V 82P	
C7015	ECEA1CKA100	ELECTROLYTIC 16V 10	
C7018	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C7019	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C7020	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	

Ref. No.	Part No.	Part Name	Remarks
C7022	ECUV1H330JCN	C CHIP +-5% 50V 33P	
C7023	ECUV1H330JCN	C CHIP +-5% 50V 33P	
C7024	ECUV1H103KBN	C CHIP 50V 0.01	
		COILS	
L1001	ELF15N005AB	LINE FILTER 0.5A 18M	⚠
	OR VLQS0166	LINE FILTER 0.5A 18M	⚠
	OR VLQS0167	LINE FILTER 0.5A 18M	⚠
L1002	VLQSAB7D220K	22	
L1003	VLQSAB7D100K	10	
L1006	VLPS0083		
L3014	VLQSH02R390K	39	
L3016	ELESN330KA	33	
L3018	ELESN470KA	47	
L3101	ELESN101KA	100	
L4001	ELELN153KA	15M	
L7001	VLQSAC3R120J	12	
L7002	VLQSAC3R101J	100	
		CRYSTAL OSCILLATOR	
X3010	VSXS0195		
X6001	VSXS0232-TB		
X6301	EF0EC8004T4		
		PIN HEADERS	
P1001	VJPS1154	CONNECTOR 2P	
P3001	VJPS0884	CONNECTOR 15P	
	(A,B,C)		
	VJPS0885	CONNECTOR 20P	
	(E,F)		
P4001	VJSS0888	FE CONNECTOR 2P	
P6002	VJPS0881	CONNECTOR 8P	
P6201	VJPS0883	CONNECTOR 14P	
		SWITCHES	
SW6001	VSHS0058	LEAF SWITCH-SAFETY TAB	
SW6002	VSSS0159	MODE SELECT SWITCH	
SW6301	EVQ21309K	PUSH SWITCH	
SW6303	EVQ21309K	PUSH SWITCH	
SW6305	EVQ21309K	PUSH SWITCH	
SW6306	EVQ21309K	PUSH SWITCH	
SW6308	EVQ21309K	PUSH SWITCH	
SW6310	EVQ21309K	PUSH SWITCH	
SW6311	EVQ21309K	PUSH SWITCH	
SW6312	EVQ21309K	PUSH SWITCH	
SW6313	EVQ21309K	PUSH SWITCH	
SW7001	VSSS0152	SELECT SWITCH	
		FUSE & PROTECTOR	
F1001	VSFS0003A16	FUSE 125V 1.6A	⚠
	OR VSFS0028A16	FUSE 125V 1.6A	⚠
	OR VSFS0030B16	FUSE 125V 1.6A	⚠
	OR XBA1C16NU100	FUSE 125V 1.6A	⚠
PR1001	ICP-N38-TP1	IC PROTECTOR 1.5A	⚠
	OR UNH000600A	IC PROTECTOR 1.5A	⚠
PR1002	ICP-N38-TP1	IC PROTECTOR 1.5A	⚠
	OR UNH000600A	IC PROTECTOR 1.5A	⚠
		TRANSFORMER	
T1001	ETS28AD2J3NP		⚠
	OR VTPS0041-1		⚠
	OR VTPS0042-1		⚠
T4101	EIQ7QF018Q		
		JACKS	
JK3001	VJHS0720	A/V JACK SOCKET	
	(A,B,C)		
	VJHS0727	A/V JACK SOCKET	
	(E,F)		

(E10, E21, E23, E25, E26)

Ref. No.	Part No.	Part Name	Remarks
		PRINTED CIRCUIT BOARD ASSEMBLY	
E10	VEPS0A55A	MAIN CHILD C.B.A.	▲
		MISCELLANEOUS	
E21	VEQS0603	TUNER, UHF/VHF NR	
E23	EYF52BC	FUSE HOLDER	
E25	VEKS5607	DISPLAY TUBE/INFRARED RECEIVER	
		UNIT	
E26	VCRS0215	IC, HYBRID MTS/SAP AUDIO	
		PROCESS	
	(E,F)		
		MAIN C.B.A.	■
		(D,G)	
		INTEGRATED CIRCUITS	
IC1001	PS2501-1-X	IC, LINEAR ERROR V. DET	⚠
	OR ON3131-R.KT	IC, LINEAR ERROR V. DET	⚠
	OR ON3131-S.KT	IC, LINEAR ERROR V. DET	⚠
IC3001	AN3476FBP	IC, LINEAR VIDEO/AUDIO PROCESS	
IC3101	MN3885S	IC, CCD 1H DELAY	E.S.D.
IC4201	AN3962FB-V	IC, LINEAR Hi-Fi AUDIO PROCESS	
	(G)		
IC6001	MN101D01FPB1	IC, 8BIT MICROPROCESSOR	E.S.D.
IC6002	CNA1801N	REEL SENSOR UNIT	
IC6003	CNA1801N	REEL SENSOR UNIT	
		TRANSISTORS	
Q1001	2SC4533LP.KT		⚠
	OR 2SC5130LF608		⚠
Q1002	2SD2259		
Q1003	2SD1819A(R,S)	CHIP	
Q1004	2SB709A	CHIP	
Q1005	2SB1218ARS	CHIP	
Q1051	2SD2159(T)		
	(D)		
	2SD2375(P,Q)		
	(G)		
Q1052	2SD601A	CHIP	
Q1053	2SD2358OOA	CHIP	
Q1056	2SD2358OOA	CHIP	
Q3001	2SB709A	CHIP	
Q4001	2SB1218ARS	CHIP	
Q4002	2SD1819A(R,S)	CHIP	
Q4003	2SD1819A(R,S)	CHIP	
Q4004	UN5115	CHIP	
Q4005	UN5215	CHIP	
	(G)		
Q4006	UN5215	CHIP	
Q4007	UN5215	CHIP	
	(G)		
Q4101	2SD601A	CHIP	
Q4601	2SD1819A(R,S)	CHIP	
	(G)		
Q6001	2SD1819A(R,S)	CHIP	
Q6002	2SB1218ARS	CHIP	
Q6003	2SD1819A(R,S)	CHIP	
Q6005	2SB709A	CHIP	
Q6006	2SD1819A(R,S)	CHIP	
Q6009	VEKS5522	PHOTO SENSOR UNIT	
Q6010	VEKS5522	PHOTO SENSOR UNIT	
Q6301	2SD601A	CHIP	
Q6302	2SD601A	CHIP	
Q6303	2SD601A	CHIP	
Q6304	2SD601A	CHIP	
	(G)		
Q6390	2SD601A	CHIP	
	(G)		

Ref. No.	Part No.	Part Name	Remarks
		DIODES	
D1001	S1WBA40		⚠
	OR S1WBA60		⚠
D1002	ERA18-04V3		
D1003	ERA18-04V3		
D1005	ERA18-04V3		
D1006	RU2YXLFC1		
	(D)		
	RU3YXLFC1		
	(G)		
D1007	MA188		
	(D)		
	ERA18-04V3		
	(G)		
D1008	ERB81-004V1		
D1011	MA4051N	ZENER 5.1V	
D1012	MA858		
D1013	MA165		
D1015	MA7180	ZENER 18V	⚠
	OR MA7180A-TR	ZENER 18V	⚠
	OR MA7180B-TR	ZENER 18V	⚠
D1016	MA165		
D1051	MA4100N	ZENER 10V	
D1052	MA165		
D1053	MA165		
D1056	ERA15-01V5		
D3004	MA4091-M	ZENER 9.1V	
D6001	VEKS5521	SENSOR LED UNIT	
D6002	MA165		
D6003	MA165		
D6007	MA165		
D6202	MA165		
D6203	MA165		
D6301	MA165		
D6302	MA165		
D6303	SLP913C81HAB	LED RED	
D6304	SLP913C81HAB	LED RED	
D6305	SLP313C81HAB	LED GREEN	
D6306	SLP313C81HAB	LED GREEN	
D6330	SLP313C81HAB	LED GREEN	
	(G)		
D6331	SLP913C81HAB	LED RED	
	(G)		
D6332	SLP313C81HAB	LED GREEN	
	(G)		
		RESISTORS	
R1001	VRESC2TK275T	+-10% 1/2W 2.7M	⚠
R1003	VRESE2TJ334	1/2W 330K	
R1004	ERG2SJW333E	METAL OXIDE 2W 33K	
R1005	ERG1SJW560E	METAL OXIDE 1W 56	
R1006	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R1007	ERDS2TJ101	100	
R1008	ERDS2TJ392	3.9K	
R1010	ERD25FYJ100T	10	⚠
R1011	ERD25FYJ100T	10	⚠
	(D)		
	ERD25FYJ4R7T	4.7	⚠
	(G)		
R1014	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R1015	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R1016	ERJ8GEYJ562V	MGF CHIP 1/8W 5.6K	
R1017	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R1018	ERJ6GEYJ183V	MGF CHIP 1/10W 18K	
R1019	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R1020	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R1022	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R1025	VRESE2TJ150	1/2W 15	
R1051	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R1052	ERDS2TJ123	12K	
	(D)		
	ERDS2TJ153	15K	
	(G)		
R1053	ERDS2TJ153	15K	
	(G)		
R1057	ERDS2TJ331	330	

Ref. No.	Part No.	Part Name	Remarks
R1058	ERDS2TJ104	100K	
R1066	ERDS2TJ182	1.8K	
R1067	ERDS2TJ104	100K	
R1068	ERDS2T0	0	●
R3002	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R3003	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R3004	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R3005	ERDS2TJ101	100	
R3021	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R3022	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R3023	ERJ6GEYJ121V	MGF CHIP 1/10W 120	
R3027	ERJ6GEYJ681V	MGF CHIP 1/10W 680	
R3029	ERJ6GEYJ125V	MGF CHIP 1/10W 1.2M	
R3030	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3031	ERJ6GEYJ474V	MGF CHIP 1/10W 470K	
R3033	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R3034	ERJ6GEYJ121V	MGF CHIP 1/10W 120	
R3035	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3036	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R3041	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R3301	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3302	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R4001	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4002	ERJ6GEYJ334V	MGF CHIP 1/10W 330K	
R4003	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R4004	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R4005	ERJ6GEYJ225V	MGF CHIP 1/10W 2.2M	
R4006	ERJ6GEYJ681V	MGF CHIP 1/10W 680	
R4007	ERJ6GEYJ821V	MGF CHIP 1/10W 820	
R4008	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R4009	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
	(D)		
R4010	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
	(D)		
	ERJ6GEYJ123V	MGF CHIP 1/10W 12K	
	(G)		
R4011	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
	(D)		
	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
	(G)		
R4012	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R4013	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
	(D)		
R4014	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R4015	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R4016	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
	(D)		
	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
	(G)		
R4017	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
	(D)		
	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(G)		
R4018	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
	(D)		
R4027	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R4028	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R4101	ERJ6GEYJ184V	MGF CHIP 1/10W 180K	
R4102	ERJ6GEYJ393V	MGF CHIP 1/10W 39K	
R4103	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R4201	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
	(G)		
R4202	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
	(G)		
R4203	ERJ6GEYJ511V	MGF CHIP 1/10W 510	
	(G)		
R4204	ERJ6GEYJ511V	MGF CHIP 1/10W 510	
	(G)		
R4205	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
	(G)		
R4206	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
	(G)		
R4207	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
	(G)		
R4208	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
	(G)		
R4213	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
	(G)		

Ref. No.	Part No.	Part Name	Remarks
R4214	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
	(G)		
R4215	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
	(G)		
R4216	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
	(G)		
R4217	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(G)		
R4218	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(G)		
R4219	ERJ6GEYJ683V	MGF CHIP 1/10W 68K	
	(G)		
R4220	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
	(G)		
R4221	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
	(G)		
R4222	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
	(G)		
R4240	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
	(G)		
R4241	ERA6YEB153V	MGF CHIP ±0.1% 1/10W 15K	
	(G)		
R4243	ERDS2TJ152	1.5K	
	(G)		
R4244	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
	(G)		
R4246	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
	(G)		
R4247	ERJ6GEYJ123V	MGF CHIP 1/10W 12K	
	(G)		
R4248	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
	(G)		
R4249	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(G)		
R4601	ERJ6GEYJ123V	MGF CHIP 1/10W 12K	
	(G)		
R4602	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
	(D)		
	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
	(G)		
R4604	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
	(G)		
R4605	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
	(G)		
R4606	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
	(G)		
R4607	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
	(G)		
R4608	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(D)		
R6001	ERDS2TJ101	100	
R6004	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
	(G)		
R6005	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
	(G)		
R6006	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6008	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
	(G)		
R6010	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6012	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6016	ERJ6GEYJ243V	MGF CHIP 1/10W 24K	
R6019	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6020	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6022	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R6023	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6024	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6025	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R6026	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6027	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6030	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6031	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R6033	ERDS2TJ681	680	
R6034	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R6035	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6037	ERDS2TJ391	390	
R6038	ERDS2TJ560	56	
R6039	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6051	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	

Ref. No.	Part No.	Part Name	Remarks
R6052	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6053	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6056	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6057	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6058	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6059	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6060	ERJ6GEYJ475V	MGF CHIP 1/10W 4.7M	
R6061	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6062	ERJ6GEYJ224V	MGF CHIP 1/10W 220K	
R6063	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R6064	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R6065	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6066	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6068	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6069	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6070	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6073	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6074	ERDS2TJ272	2.7K	
R6075	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6077	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6078	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6080	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6081	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6082	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6084	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6085	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6086	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6087	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6088	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
	(G)		
R6089	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6103	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6108	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6109	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6110	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6201	EVNGBAA01B24	VARIABLE 20K	
R6202	ERJ6GEYJ274V	MGF CHIP 1/10W 270K	
R6203	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6204	ERJ6GEYJ184V	MGF CHIP 1/10W 180K	
R6205	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6224	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6228	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R6230	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6301	ERDS2TJ104	100K	
R6302	ERDS2TJ104	100K	
R6303	ERDS2TJ104	100K	
R6304	ERDS2TJ104	100K	
R6305	ERDS2TJ104	100K	
R6306	ERDS2TJ151	150	
R6308	ERDS2TJ151	150	
R6309	ERDS2TJ151	150	
R6310	ERDS2TJ151	150	
R6311	ERDS2TJ151	150	
	(G)		
R6313	ERDS2TJ151	150	
	(G)		
R6314	ERDS2TJ151	150	
	(G)		
R6315	ERDS2TJ470	47	
R6390	ERDS2TJ562	5.6K	
	(G)		
R7001	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
	(D)		
R7002	ERJ6GEYJ271V	MGF CHIP 1/10W 270	
R7004	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7006	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7007	EVNGBAA01B24	VARIABLE 20K	
	(G)		
		CAPACITORS	
C1001	ECKNRS103ZVD	CERAMIC +80%-20% 125V 0.01	⚠
	OR ECKNTS103MF8	CERAMIC +-20% 125V 0.01	⚠
	OR VCKSTQG103ZY	CERAMIC +80%-20% 125V 0.01	⚠
	OR VCKSUQD103MY	CERAMIC +-20% 125V 0.01	⚠
C1002	ECKNNB332ME8	CERAMIC +-20% 125V 3300P	⚠
	OR ECKNTS332ME8	CERAMIC +-20% 125V 3300P	⚠
	OR VCKSTQG332MX	CERAMIC +-20% 125V 3300P	⚠
	OR VCKSUQD332MX	CERAMIC +-20% 125V 3300P	⚠

Ref. No.	Part No.	Part Name	Remarks
C1003	ECKNNB332ME8	CERAMIC +-20% 125V 3300P	⚠
	OR ECKNTS332ME8	CERAMIC +-20% 125V 3300P	⚠
	OR VCKSTQG332MX	CERAMIC +-20% 125V 3300P	⚠
	OR VCKSUQD332MX	CERAMIC +-20% 125V 3300P	⚠
C1004	ECEA2DU820YB	ELECTROLYTIC 200V 82	⚠
	OR VCESR2D820XB	ELECTROLYTIC 200V 82	⚠
	(D)		
	ECEA2DU121YB	ELECTROLYTIC 200V 120	⚠
	OR VCESR2D121XB	ELECTROLYTIC 200V 120	⚠
	(G)		
C1005	ECA2DHG4R7B	ELECTROLYTIC 200V 4.7	
C1006	ECKW2H221KB5	CERAMIC 500V 220P	
C1007	VCKSLZE224MB	CERAMIC +-20% 25V 0.22	
C1009	ECQB1H183JF	POLYESTER +-5% 50V 0.018	
C1010	ECUV1H101JCM	C CHIP +-5% 50V 100P	
C1011	ECA1HM4R7B	ELECTROLYTIC 50V 4.7	
	(D)		
	ECEA1HGE4R7	ELECTROLYTIC 50V 4.7	
	(G)		
C1012	ECEA1PEE331	ELECTROLYTIC 18V 330	
C1013	ECA1EM331B	ELECTROLYTIC 25V 330	
C1014	ECEA1HGE4R7	ELECTROLYTIC 50V 4.7	
	(D)		
	ECEA1HGE470	ELECTROLYTIC 50V 47	
	(G)		
C1016	ECEA1PEE331	ELECTROLYTIC 18V 330	
C1017	ECA0JM102B	ELECTROLYTIC 6.3V 1000	
C1018	VCYSBRC104MX	CERAMIC +-20% 16V 0.1	
C1021	ECEA1HKG010	ELECTROLYTIC 50V 1	
C1025	ECKNRS101MBY	CERAMIC +-20% 125V 100P	⚠
	OR ECKNTS101MB	CERAMIC +-20% 125V 100P	⚠
	OR VCKSTNG101KW	CERAMIC 125V 100P	⚠
	OR VCKSUND101KW	CERAMIC 125V 100P	⚠
C1027	ECKNRS103ZVD	CERAMIC +80%-20% 125V 0.01	⚠
	OR ECKNTS103MF8	CERAMIC +-20% 125V 0.01	⚠
	OR VCKSTQG103ZY	CERAMIC +80%-20% 125V 0.01	⚠
	OR VCKSUQD103MY	CERAMIC +-20% 125V 0.01	⚠
C1028	ECEA1PEE331	ELECTROLYTIC 18V 330	
C1029	ECUV1H101JCN	C CHIP +-5% 50V 100P	
C1030	VCYSBRE183KX	CERAMIC 25V 0.018	
C1051	ECEA1HKAR47	ELECTROLYTIC 50V 0.47	
C1052	ECEA1CKA100	ELECTROLYTIC 16V 10	
C1058	ECEA0JEE101	ELECTROLYTIC 6.3V 100	
C1059	ECEA1CKA470	ELECTROLYTIC 16V 47	
C1061	ECUV1H102KBN	C CHIP 50V 1000P	
C3001	ECA0JM471	ELECTROLYTIC 6.3V 470	
C3002	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3011	ECUV1H103KBN	C CHIP 50V 0.01	
C3014	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3015	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3017	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C3018	ECUV1H181JCN	C CHIP +-5% 50V 180P	
C3019	ECUV1H560JCN	C CHIP +-5% 50V 56P	
C3021	ECUV1C224ZFN	C CHIP +80%-20% 16V 0.22	
C3022	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3023	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C3024	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C3025	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3026	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3027	ECUV1C224ZFN	C CHIP +80%-20% 16V 0.22	
C3028	ECEA1CKA100	ELECTROLYTIC 16V 10	
C3029	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3030	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C3031	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3032	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3033	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C3034	ECEA1HKAR22	ELECTROLYTIC 50V 0.22	
C3035	ECUV1H560JCN	C CHIP +-5% 50V 56P	
C3036	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3037	ECEA0JKA220	ELECTROLYTIC 6.3V 22	
C3039	ECUV1H822KBN	C CHIP 50V 8200P	
C3043	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3044	ECUV1C474ZFN	C CHIP +80%-20% 16V 0.47	
C3045	ECUV1C474ZFN	C CHIP +80%-20% 16V 0.47	
C3047	ECUV1H181JCN	C CHIP +-5% 50V 180P	
C3048	ECUV1H560JCN	C CHIP +-5% 50V 56P	
C3049	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3050	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3051	ECEA0JKA221	ELECTROLYTIC 6.3V 220	

Ref. No.	Part No.	Part Name	Remarks
C3052	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3053	ECEA1HKAR47	ELECTROLYTIC 50V 0.47	
C3054	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3055	ECUV1H392KBN	C CHIP 50V 3900P	
C3056	ECEA1HKA010	ELECTROLYTIC 50V 1	
C3057	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3058	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C3062	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3101	ECEA1HKA010	ELECTROLYTIC 50V 1	
C3102	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3104	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3105	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3106	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3108	ECUV1H102KBN	C CHIP 50V 1000P	
C3109	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C3302	ECEA1HKA010	ELECTROLYTIC 50V 1	
C3303	ECUV1H390JCN	C CHIP +-5% 50V 39P	
C3304	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3306	ECEA1HKN010	ELECTROLYTIC 50V 1	
C4001	ECUV1C224ZFN	C CHIP +80%-20% 16V 0.22	
C4002	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4003	ECUV1H392KBN	C CHIP 50V 3900P	
C4004	ECUV1H103KBN	C CHIP 50V 0.01	
C4005	ECEA0JKA220	ELECTROLYTIC 6.3V 22	
C4006	ECUV1H102KBN	C CHIP 50V 1000P	
C4007	ECEA0JKA220	ELECTROLYTIC 6.3V 22	
C4008	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C4009	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4010	ECUV1E273KBN	C CHIP 25V 0.027	
C4011	ECUV1H822KBN	C CHIP 50V 8200P	
C4012	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4013	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C4014	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4017	ECUV1H103KBN	C CHIP 50V 0.01	
	(G)		
C4018	ECEA1HKA010	ELECTROLYTIC 50V 1	
	(D)		
C4020	ECUV1H102KBN	C CHIP 50V 1000P	
C4101	ECUV1H221JCN	C CHIP +-5% 50V 220P	
C4102	ECQB1562JF	POLYESTER +-5% 200V 5600P	
C4103	ECUV1H103KBN	C CHIP 50V 0.01	
C4104	ECUV1H103KBN	C CHIP 50V 0.01	
C4106	ECEA1CKA220	ELECTROLYTIC 16V 22	
C4201	ECUV1E473KBN	C CHIP 25V 0.047	
	(G)		
C4202	ECUV1E473KBN	C CHIP 25V 0.047	
	(G)		
C4203	ECEA0JKA330	ELECTROLYTIC 6.3V 33	
	(G)		
C4204	ECEA0JKA330	ELECTROLYTIC 6.3V 33	
	(G)		
C4205	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
	(G)		
C4206	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
	(G)		
C4207	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
	(G)		
C4208	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
	(G)		
C4209	ECUV1H153KBN	C CHIP 50V 0.015	
	(G)		
C4210	ECUV1H153KBN	C CHIP 50V 0.015	
	(G)		
C4211	ECUV1H103KBN	C CHIP 50V 0.01	
	(G)		
C4212	ECUV1H103KBN	C CHIP 50V 0.01	
	(G)		
C4213	ECEA1HKA010	ELECTROLYTIC 50V 1	
	(G)		
C4214	ECEA1HKA010	ELECTROLYTIC 50V 1	
	(G)		
C4217	ECEA1HKA010	ELECTROLYTIC 50V 1	
	(G)		
C4218	ECEA1HKA010	ELECTROLYTIC 50V 1	
	(G)		
C4219	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(G)		
C4220	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(G)		

Ref. No.	Part No.	Part Name	Remarks
C4229	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
	(G)		
C4235	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(G)		
C4236	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
	(G)		
C4237	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(G)		
C4238	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(G)		
C4239	ECEA1HKA010	ELECTROLYTIC 50V 1	
	(G)		
C4240	ECUV1C224ZFN	C CHIP +80%-20% 16V 0.22	
	(G)		
C4242	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
	(G)		
C4601	ECUV1C224ZFN	C CHIP +80%-20% 16V 0.22	
	(G)		
C4603	ECUV1C224ZFN	C CHIP +80%-20% 16V 0.22	
C4606	ECUV1C224ZFN	C CHIP +80%-20% 16V 0.22	
	(G)		
C6003	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6005	ECUV1H150JCN	C CHIP +-5% 50V 15P	
C6006	ECUV1H120JCN	C CHIP +-5% 50V 12P	
C6012	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6016	ECEA0JU471	ELECTROLYTIC 6.3V 470	
C6017	ECUV1H101JCN	C CHIP +-5% 50V 100P	
C6019	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C6025	ECUV1H101JCN	C CHIP +-5% 50V 100P	
C6026	ECUV1H102KBN	C CHIP 50V 1000P	
C6201	ECUV1H102KBN	C CHIP 50V 1000P	
C6203	ECUV1H103KBN	C CHIP 50V 0.01	
C6207	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6208	ECEA1HKA010	ELECTROLYTIC 50V 1	
C6213	ECUV1H151KN	C CHIP 50V 150P	
C6214	ECUV1H102KBN	C CHIP 50V 1000P	
C6217	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6218	ECEA1CKA100	ELECTROLYTIC 16V 10	
C6221	ECEA0JKA220	ELECTROLYTIC 6.3V 22	
C6222	ECUV1H272KBN	C CHIP 50V 2700P	
C6223	ECUV1H103KBN	C CHIP 50V 0.01	
C6224	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C6228	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6301	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C6390	ECEA1CKA470	ELECTROLYTIC 16V 47	
	(G)		
C7001	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C7003	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C7005	ECUV1E183KBN	C CHIP 25V 0.018	
	(D)		
C7006	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C7008	ECEA1CKA101	ELECTROLYTIC 16V 100	
C7010	ECUV1H102KBN	C CHIP 50V 1000P	
C7015	ECEA1CKA100	ELECTROLYTIC 16V 10	
C7018	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C7019	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C7020	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C7022	ECUV1H330JCN	C CHIP +-5% 50V 33P	
C7023	ECUV1H330JCN	C CHIP +-5% 50V 33P	
C7024	ECUV1H103KBN	C CHIP 50V 0.01	
		COILS	
L1001	ELF15N005AB	LINE FILTER 0.5A 18M ⚠	
	OR VLQS0166	LINE FILTER 0.5A 18M ⚠	
	OR VLQS0167	LINE FILTER 0.5A 18M ⚠	
L1002	VLQSAB7D220K	22	
L1003	VLQSAB7D100K	10	
L1006	VLPS0083		
L3014	VLQSH02R390K	39	
L3016	ELESN330KA	33	
L3018	ELESN470KA	47	
L3101	ELESN101KA	100	
L3301	ELESN101KA	100	
L4001	ELELN153KA	15M	
L7001	VLQSAC3R120J	+-5% 12	
L7002	VLQSAC3R101J	+-5% 100	

(E10, E21, E23, E24, E26)

Ref. No.	Part No.	Part Name	Remarks
		CRYSTAL OSCILLATOR	
X3010	VSXS0195		
X6001	VSXS0232-TB		
		PIN HEADERS	
P1001	VJPS1154	CONNECTOR 2P	
P3001	VJPS0884	CONNECTOR 15P	
	(D)		
	VJPS0885	CONNECTOR 20P	
	(G)		
P4001	VJSS0888	FE CONNECTOR 2P	
P6002	VJPS0881	CONNECTOR 8P	
P6201	VJPS0883	CONNECTOR 14P	
		SWITCHES	
SW6001	VSHS0058	LEAF SWITCH-SAFETY TAB	
SW6002	VSSS0159	MODE SELECT SWITCH	
SW6302	EVQ21309K	PUSH SWITCH	
SW6303	EVQ21309K	PUSH SWITCH	
SW6305	EVQ21309K	PUSH SWITCH	
SW6306	EVQ21309K	PUSH SWITCH	
SW6307	EVQ21309K	PUSH SWITCH	
SW6309	EVQ21309K	PUSH SWITCH	
SW6310	EVQ21309K	PUSH SWITCH	
SW6311	EVQ21309K	PUSH SWITCH	
SW6312	EVQ21309K	PUSH SWITCH	
SW7001	VSSS0152	SELECT SWITCH	
		FUSE & PROTECTOR	
F1001	VSFS0003A16	FUSE 125V 1.6A	⚠
	OR VSFS0028A16	FUSE 125V 1.6A	⚠
	OR VSFS0030B16	FUSE 125V 1.6A	⚠
	OR XBA1C16NU100	FUSE 125V 1.6A	⚠
PR1001	ICP-N38-TP1	IC PROTECTOR 1.5A	⚠
	OR UNH000600A	IC PROTECTOR 1.5A	⚠
PR1002	ICP-N38-TP1	IC PROTECTOR 1.5A	⚠
	OR UNH000600A	IC PROTECTOR 1.5A	⚠
		TRANSFORMER	
T1001	ETS28AD2J3NP		⚠
	OR VTPS0041-1		⚠
	OR VTPS0042-1		⚠
T4101	EIQ7QF018Q		
		JACKS	
JK3001	VJHS0720	A/V JACK SOCKET	
	(D)		
	VJHS0727	A/V JACK SOCKET	
	(G)		
		PRINTED CIRCUIT BOARD ASSEMBLY	
E10	VEPS0A55A	MAIN CHILD C.B.A.	▲
		MISCELLANEOUS	
E21	VEQS0603	TUNER, UHF/VHF NR	
E23	EYF52BC	FUSE HOLDER	
E24	VEKS5615	LED HOLDER/INFRARED RECEIVER UNIT	
E26	VCRS0215	IC, HYBRID MTS/SAP AUDIO PROCESS	
	(G)		

(E35)

Ref. No.	Part No.	Part Name	Remarks
		MAIN CHILD C.B.A.	▲
		TRANSISTORS	
Q6011	UN511L	CHIP	
Q6012	UN5211	CHIP	
		DIODES	
D6008	MA111	CHIP	
		MISCELLANEOUS	
E35	VMTS0035	CUSHION, RUBBER	
		HEAD AMP C.B.A.	■
		(A,B,C,D)	
		INTEGRATED CIRCUITS	
IC2601	AN3809K	IC, LINEAR CYL. DRIVE	
IC3501	AN3361SB	IC, LINEAR HEAD AMP	
		RESISTORS	
R2601	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2602	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2603	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2604	ERDS2TJ1R0	1	
R2605	ERDS2TJ1R2	1.2	
R2606	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R3501	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R3502	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3503	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3504	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3505	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3506	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R3507	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
		CAPACITORS	
C2604	ECUV1E104KBN	C CHIP 25V 0.1	
C2605	ECUV1E104KBN	C CHIP 25V 0.1	
C2606	ECUV1E104KBN	C CHIP 25V 0.1	
C2607	ECUV1E104KBN	C CHIP 25V 0.1	
C2608	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C2609	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C2610	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C2611	ECUV1E333KBN	C CHIP 25V 0.033	
C2612	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C2613	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C2614	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C2615	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C3504	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3505	ECEA1CKA470	ELECTROLYTIC 16V 47	
C3506	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3507	ECUV1H102KBN	C CHIP 50V 1000P	
C3508	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3511	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3512	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3513	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3519	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3520	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3524	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3525	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3528	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3529	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3532	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3533	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
		COILS	
L3501	ELESN101KA	100	

(E22)

Ref. No.	Part No.	Part Name	Remarks
		PIN HEADERS	
P3501	VJSS0885	CONNECTOR 15P	
		Hi-Fi AUDIO/VIDEO	■
		HEAD AMP C.B.A.	
		(E,F,G)	
		INTEGRATED CIRCUITS	
IC2601	AN3809K	IC, LINEAR CYL. DRIVE	
IC3501	AN3361SB	IC, LINEAR HEAD AMP	
IC4401	AN3328S	IC, LINEAR Hi-Fi AUDIO HEAD	
		AMP	
		RESISTORS	
R2601	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2602	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2603	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2604	ERDS2TJ1R0	1	
R2605	ERDS2TJ1R2	1.2	
R2606	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R3501	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R3502	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3503	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3504	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3505	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3506	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R3507	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R4405	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4406	ERJ6GEYJ180V	MGF CHIP 1/10W 18	
R4407	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
		CAPACITORS	
C2604	ECUV1E104KBN	C CHIP 25V 0.1	
C2605	ECUV1E104KBN	C CHIP 25V 0.1	
C2606	ECUV1E104KBN	C CHIP 25V 0.1	
C2607	ECUV1E104KBN	C CHIP 25V 0.1	
C2608	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C2609	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C2610	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C2611	ECUV1E333KBN	C CHIP 25V 0.033	
C2612	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C2613	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C2614	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C2615	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C3504	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3505	ECEA1CKA470	ELECTROLYTIC 16V 47	
C3506	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3507	ECUV1H102KBN	C CHIP 50V 1000P	
C3508	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3511	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3512	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3513	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3519	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3520	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3523	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3524	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3528	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3529	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3532	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3533	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C4401	ECUV1H102KBN	C CHIP 50V 1000P	
C4402	ECUV1H102KBN	C CHIP 50V 1000P	
C4405	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C4406	ECUV1H472KBN	C CHIP 50V 4700P	
C4408	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4409	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C4411	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
C4412	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C4413	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C4414	ECEA0JKA470	ELECTROLYTIC 6.3V 47	

Ref. No.	Part No.	Part Name	Remarks
		COILS	
L3501	ELESN101KA	100	
L4401	VLQSH02R101K	100	
		PIN HEADERS	
P3501	VJSS0886	CONNECTOR 20P	
		JUNCTION C.B.A.	■
		RESISTORS	
R2531	ERDS2TJ270	27	
		CAPACITORS	
C2531	ECEA1CKA220	ELECTROLYTIC 16V 22	
C2532	ECEA1CKA220	ELECTROLYTIC 16V 22	
C2533	ECEA1CKA220	ELECTROLYTIC 16V 22	
		PIN HEADERS	
P2531	VJSS0884	CONNECTOR 14P	
		ELECTRICAL PARTS	
		LOCATED ON CHASSIS	
IC2501	AN3845SC	IC, LINEAR CAP./LOADING DRIVE	
E22	VJAS0195-FS	AC CORD KIT W/PLUG	⚠
	(A,C)		
E22	VJAS0195-F	AC CORD W/PLUG	⚠
	OR VJAS0199-K	AC CORD W/PLUG	⚠
	(B,D,E,F,G)		
		SUMMARY OF "E" ITEM NUMBERS	
		REFER TO ELECTRICAL PARTS LIST	
		FOR MODEL INFORMATION	
E1	VEPS6040GA	MAIN C.B.A.	
E1	VEPS6040GB	MAIN C.B.A.	
E1	VEPS6043GA	MAIN C.B.A.	
E1	VEPS6040HA	MAIN C.B.A.	
E1	VEPS6040HF	MAIN C.B.A.	
E1	VEPS6043HA	MAIN C.B.A.	
E6	VEPS5011A	HEAD AMP C.B.A.	
E6	VEPS5010B	Hi-Fi AUDIO/VIDEO HEAD AMP	
		C.B.A.	
E7	VEPS0A25A	JUNCTION C.B.A.	
E10	VEPS0A55A	MAIN CHILD C.B.A.	
E21	VEQS0603	TUNER, UHF/VHF NR	
E22	VJAS0195-FS	AC CORD KIT W/PLUG	⚠
E22	VJAS0195-F	AC CORD W/PLUG	⚠
E22	VJAS0199-K	AC CORD W/PLUG	⚠
E23	EYF52BC	FUSE HOLDER	
E24	VEKS5615	LED HOLDER/INFRARED RECEIVER	
		UNIT	
E25	VEKS5607	DISPLAY TUBE/INFRARED RECEIVER	
		UNIT	
E26	VCRS0215	IC, HYBRID MTS/SAP AUDIO	
		PROCESS	
E35	VMTS0035	CUSHION, RUBBER	

VJ0685

ORDER NO. MKS9807S303
B3

Service Manual

Video Product

Supplement

Effective from: COMMON

Model No. See below

Subject: Service Manual Correction

Please use this manual together with the Service Manual for Order No. MKS9801M301;
Model No. PV-8400/ PV-8400-K/ PV-8401/ PV-8450/ PV-8450-K/ VHQ840/ VHQ860.

Please correct the Service Manual as follows.

Electrical Replacement Parts List

The Electrical Replacement Parts List have been corrected as follows.

Ref. No.	Original Part No.	New Part No.	Part Name			Model	Remarks
R4101	ERJ6GEYJ184V	ERJ6GEYJ224V	MGF CHIP	1/10W	220KΩ	All models	
R4102	ERJ6GEYJ393V	ERJ6GEYJ333V	MGF CHIP	1/10W	33KΩ	All models	
R6009	----------	ERJ6GEY0R00V	MGF CHIP	1/10W	0Ω	G	
R6018	----------	ERJ6GEYJ102V	MGF CHIP	1/10W	1KΩ	E, F	*1
						G	
R6029	----------	ERJ6GEYJ103V	MGF CHIP	1/10W	10KΩ	G	
R6036	----------	ERJ6GEYJ101V	MGF CHIP	1/10W	100Ω	A, B, C, E, F	*1
						D, G	
R6040	----------	ERJ6GEYJ103V	MGF CHIP	1/10W	10KΩ	A, B, C, E, F	*1
						D, G	
R6041	----------	ERJ6GEYJ103V	MGF CHIP	1/10W	10KΩ	A, B, C, E, F	*1
						D, G	
R6042	----------	ERJ6GEYJ103V	MGF CHIP	1/10W	10KΩ	A, B, C, E, F	*1
						D, G	
R6043	----------	ERJ6GEYJ103V	MGF CHIP	1/10W	10KΩ	A, B, C, E, F	*1
	----------	ERJ6GEYJ223V	MGF CHIP	1/10W	22KΩ	D, G	

*1: These have been changed on running change basis.

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PV-8400	A
PV-8400-K	B
PV-8401	C
VHQ840	D
PV-8450	E
PV-8450-K	F
VHQ860	G

Model No. PV-8400/ PV-8400-K/ PV-8401/ PV-8450/ PV-8450-K/ VHQ840/ VHQ860
PV-8200/ PV-8200-K/ PV-8402/ PV-8451/ PV-8451-K/ PV-8455S/ PV-8456-K
PV-8552-K/ PV-8553-K/ VHQ820

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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Ref. No.	Original Part No.	New Part No.	Part Name				Model	Remarks
R6044	----------	ERJ6GEYJ103V	MGF CHIP		1/10W	10KΩ	A, B, C, E, F	*1
	----------	ERJ6GEYJ223V	MGF CHIP		1/10W	22KΩ	D, G	
R6045	----------	ERJ6GEYJ103V	MGF CHIP		1/10W	10KΩ	A, B, C, E, F	*1
	----------	ERJ6GEYJ223V	MGF CHIP		1/10W	22KΩ	D, G	
R6046	----------	ERJ6GEYJ103V	MGF CHIP		1/10W	10KΩ	A, B, C, E, F	*1
	----------	ERJ6GEYJ223V	MGF CHIP		1/10W	22KΩ	D, G	
R6047	----------	ERJ6GEYJ103V	MGF CHIP		1/10W	10KΩ	A, B, C, E, F	*1
	----------	ERJ6GEYJ223V	MGF CHIP		1/10W	22KΩ	D, G	
R6048	----------	ERJ6GEYJ103V	MGF CHIP		1/10W	10KΩ	A, B, C, E, F	*1
	----------	ERJ6GEYJ223V	MGF CHIP		1/10W	22KΩ	D, G	
R6049	----------	ERJ6GEYJ103V	MGF CHIP		1/10W	10KΩ	A, B, C, E, F	*1
	----------	ERJ6GEYJ223V	MGF CHIP		1/10W	22KΩ	D, G	
R6050	----------	ERJ6GEYJ103V	MGF CHIP		1/10W	10KΩ	A, B, C, E, F	*1
	----------	ERJ6GEYJ223V	MGF CHIP		1/10W	22KΩ	D, G	
R6071	----------	ERJ6GEYJ102V	MGF CHIP		1/10W	1KΩ	E, F	*1
							G	
R6072	----------	ERJ6GEYJ102V	MGF CHIP		1/10W	1KΩ	D, G	
R6076	----------	ERJ6GEYJ102V	MGF CHIP		1/10W	1KΩ	D, G	
R6079	----------	ERJ6GEYJ102V	MGF CHIP		1/10W	1KΩ	D, G	
R6111	----------	ERJ6GEYJ223V	MGF CHIP		1/10W	22KΩ	G	
R6112	----------	ERJ6GEYJ223V	MGF CHIP		1/10W	22KΩ	G	
R6115	----------	ERJ6GEYJ473V	MGF CHIP		1/10W	47KΩ	A, B, C, E, F	*1
	----------	ERJ6GEYJ102V	MGF CHIP		1/10W	1KΩ	D, G	
R6116	----------	ERJ6GEYJ473V	MGF CHIP		1/10W	47KΩ	A, B, C, E, F	*1
	----------	ERJ6GEYJ102V	MGF CHIP		1/10W	1KΩ	D, G	
R7004	ERJ6GEYJ102V	ERJ6GEYJ103V	MGF CHIP		1/10W	10KΩ	D, G	
C1010	ECUV1H101JCM	ECUV1H101JCN	C CHIP	+-5%	50V	100PF	A, B, C, E, F	*1
							G	
	ECUV1H101JCM	ECUV1H103KBN	C CHIP		50V	0.01μF	D	
C1032	----------	ECEA0JKA221	ELECTROLYTIC		6.3V	220μF	D, G	
C3059	----------	ECUV1H020CCN	C CHIP	+-0.25PF	50V	2PF	A, B, C, D, G	
C3105	ECUV1H103ZFN	----------	C CHIP	+80%-20%	50V	0.01μF	All models	
C3312	----------	ECUV1H100CCN	C CHIP	+-0.25P	50V	10PF	D, G	
C7007	----------	ECUV1E104KBN	C CHIP		25V	0.1μF	D, G	
C7011	----------	ECUV1H820JCN	C CHIP	+-5%	50V	82PF	D, G	
L3301	ELESN101KA	JUMPER WIRE	JUMPER WIRE		(not supplied)		D, G	
L4101	JUMPER WIRE	ELESN471KA	COIL			470μH	All models	
L7003	----------	ERJ6GEY0R00V	MGF CHIP		1/10W	0Ω	All models	*1
L7004	----------	ERJ6GEY0R00V	MGF CHIP		1/10W	0Ω	All models	*1
L7005	----------	ERJ6GEY0R00V	MGF CHIP		1/10W	0Ω	All models	*1
J1003	----------	ERJ8GEY0R00Z	MGF CHIP		1/8W	0Ω	A, B, C, E, F	*1
							D, G	

*1: These have been changed on running change basis.

Mechanical Replacement Parts List

The Mechanical Replacement Parts List have been corrected as follows.

Ref. No.	Original Part No.	New Part No.	Part Name	Model	Remarks
121	VPGS4311	VPGS4362	PACKING CASE, PAPER	A	*1
	VPGS4313	VPGS4364	PACKING CASE, PAPER	E	*1

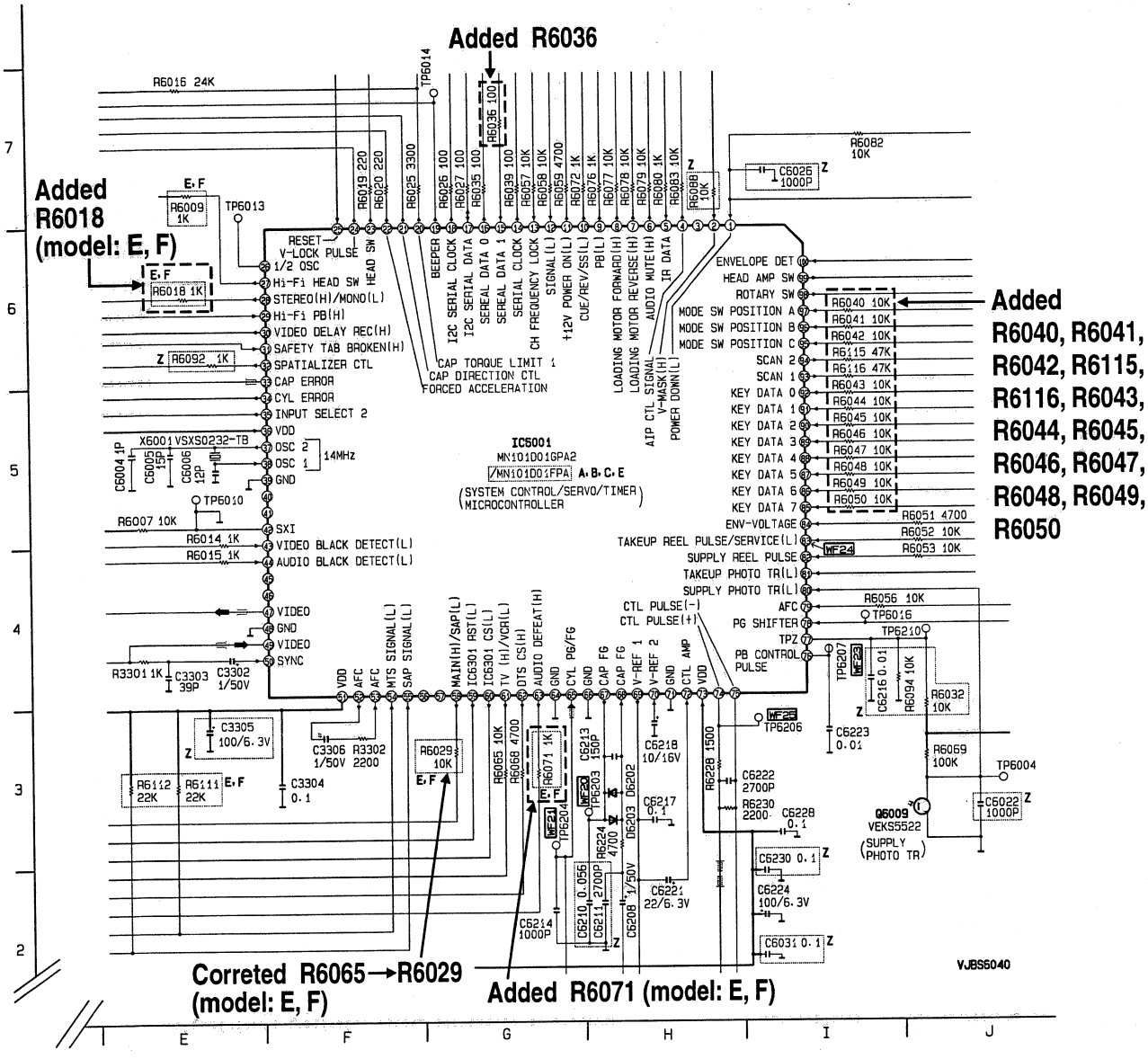
*1: These have been changed on running change basis.

Schematic Diagrams

The Main I/ II/ III Schematic Diagram on pages 3-2 ~ 3-11 have been corrected as follows.

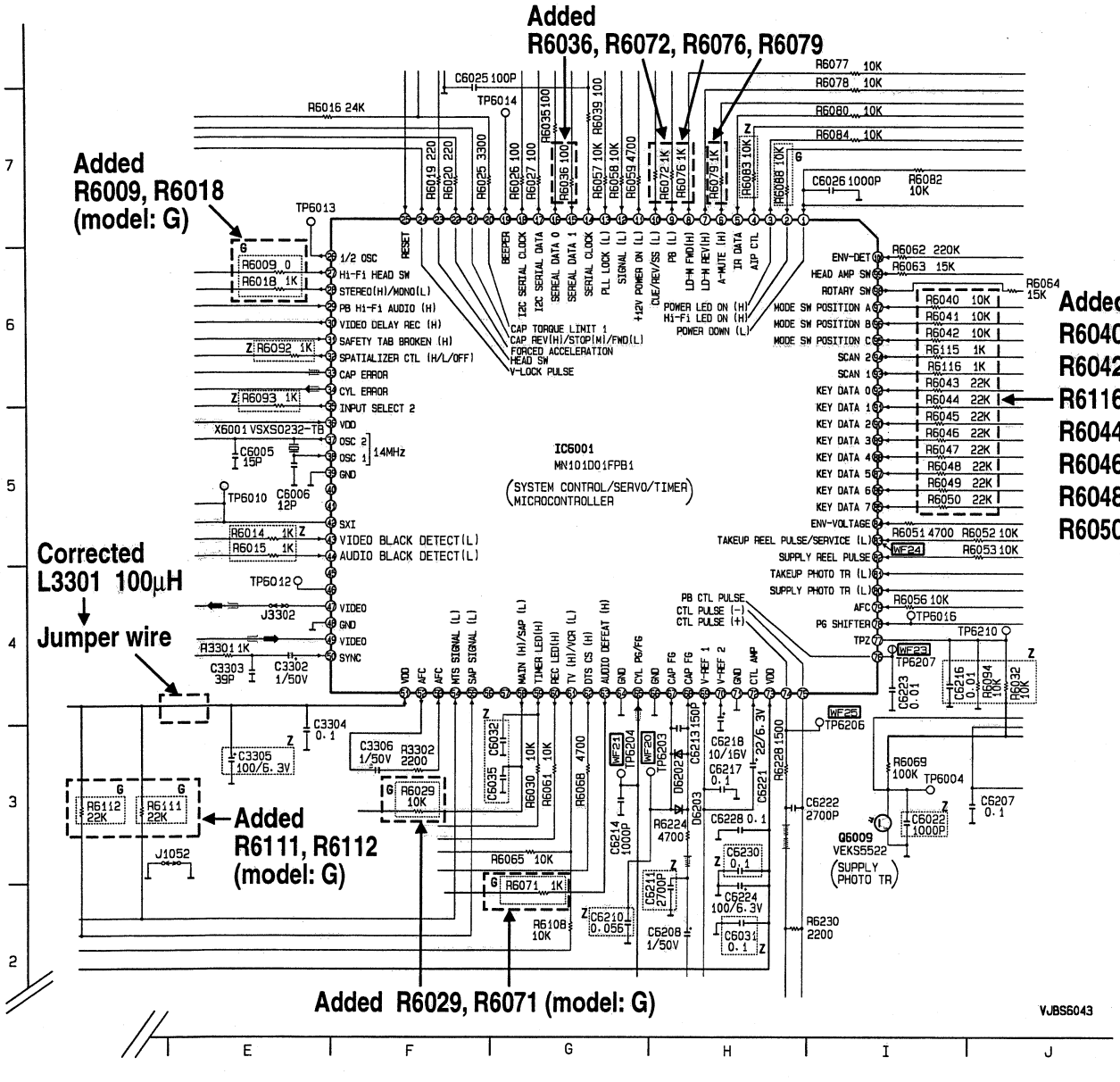
Main I Partial Schematic Diagram

Model: A, B, C, E, F (page 3-2 ~ 3-3)



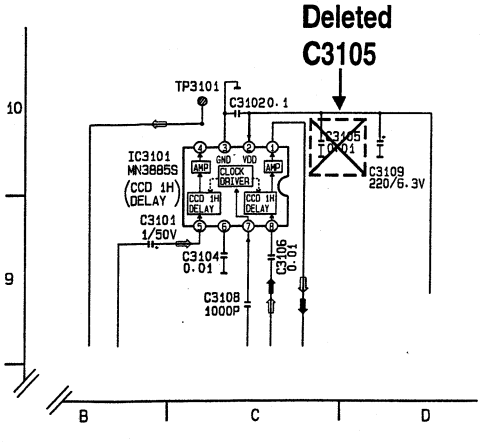
Main I Partial Schematic Diagram

Model: D, G (page 3-6 ~ 3-7)



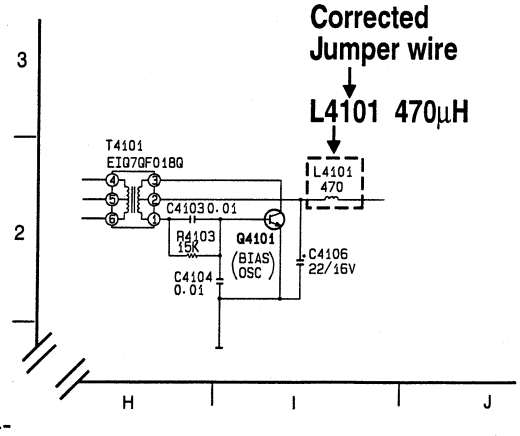
Main II Partial Schematic Diagram

Model: A, B, C, E, F (page 3-4)
Model: D, G (page 3-8)



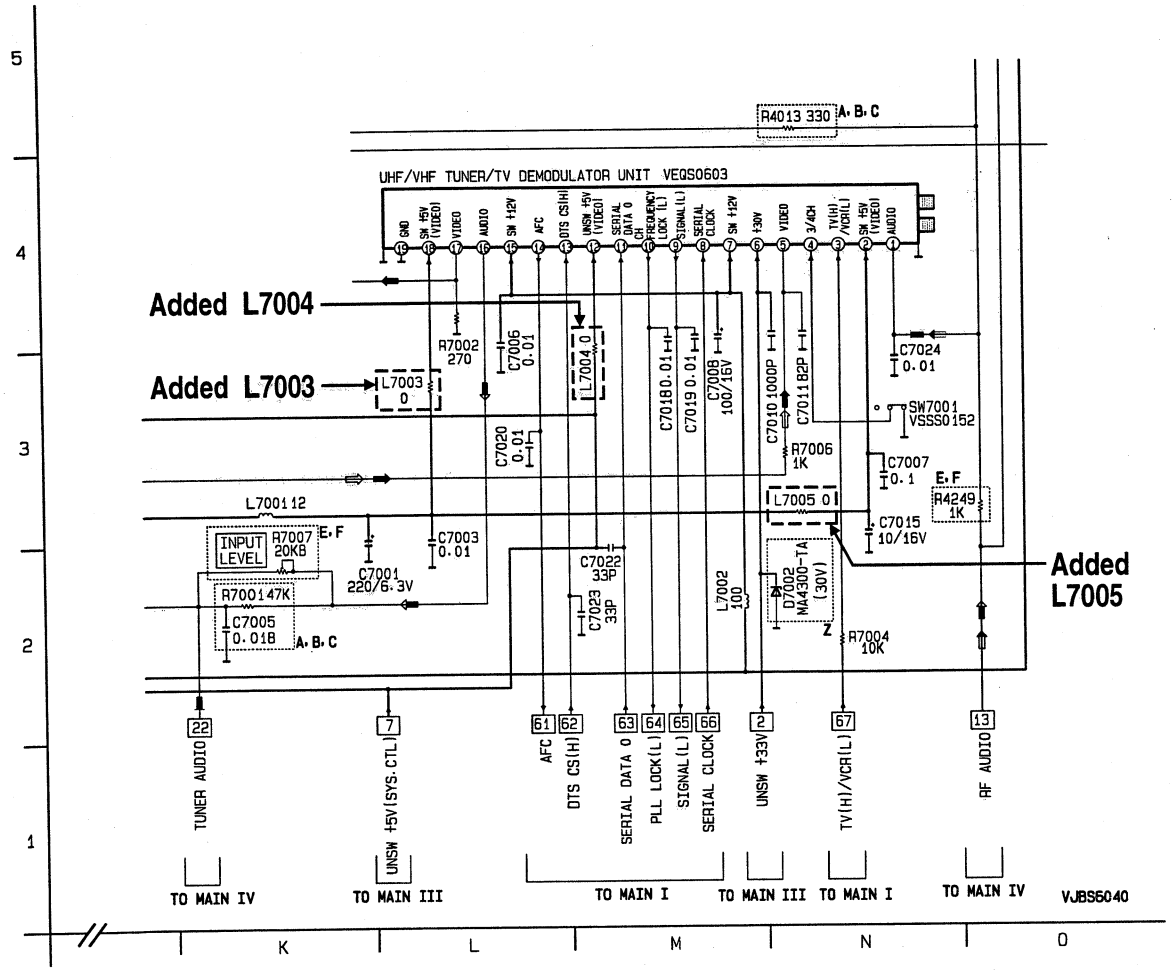
Main II Partial Schematic Diagram

Model: A, B, C, E, F (page 3-5)
Model: D, G (page 3-9)



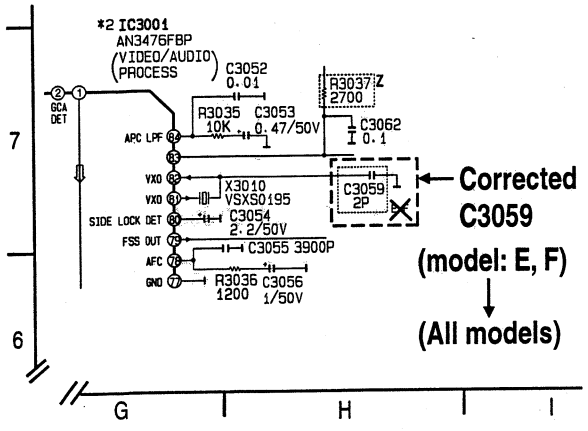
Main II Partial Schematic Diagram

Model: A, B, C, E, F (page 3-5)



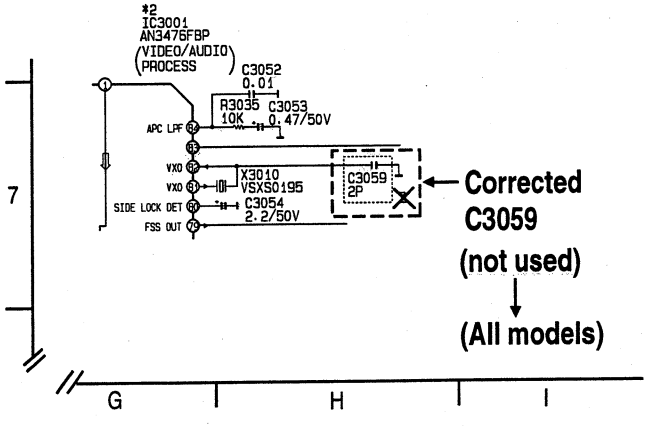
Main II Partial Schematic Diagram

Model: A, B, C, E, F (page 3-4 ~ 3-5)



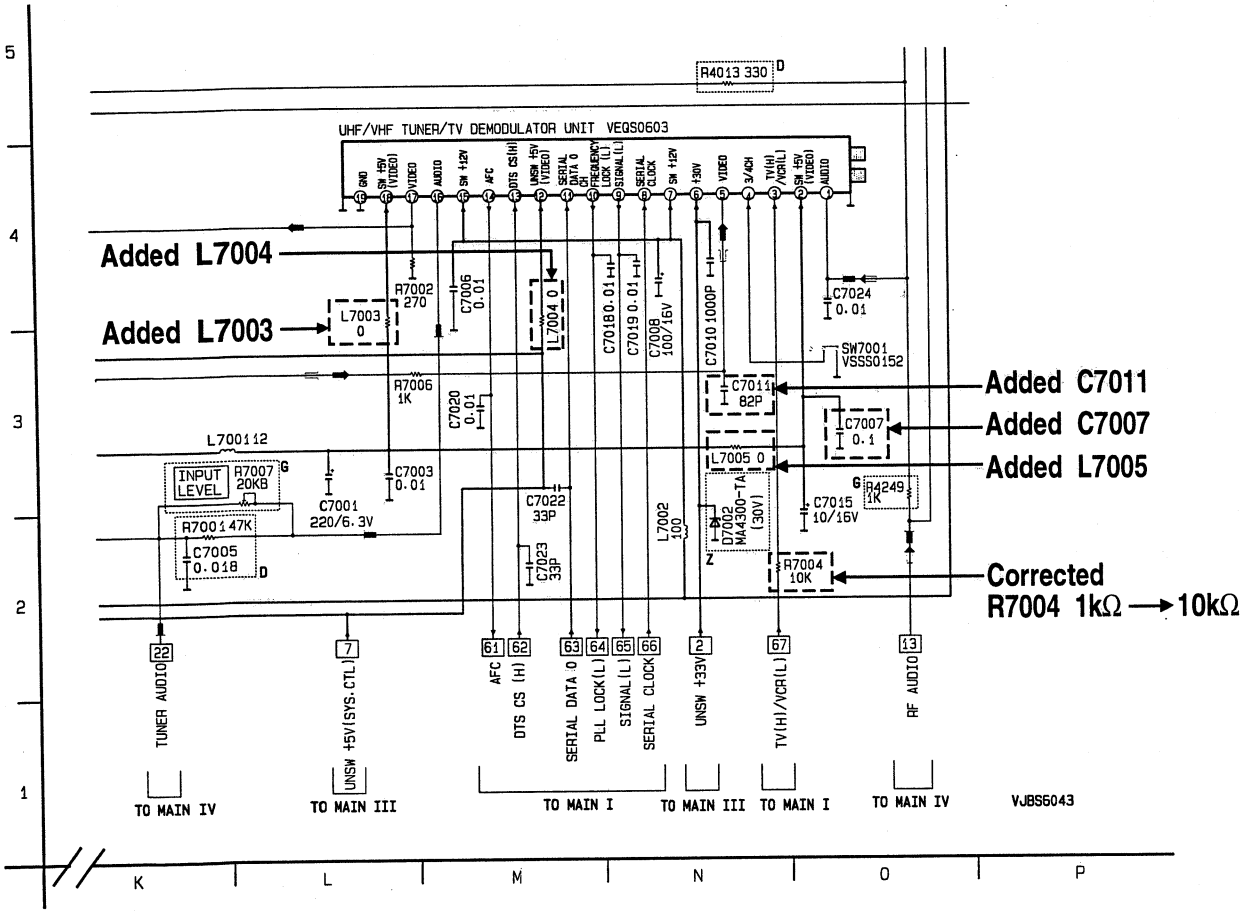
Main II Partial Schematic Diagram

Model: D, G (page 3-8 ~ 3-9)



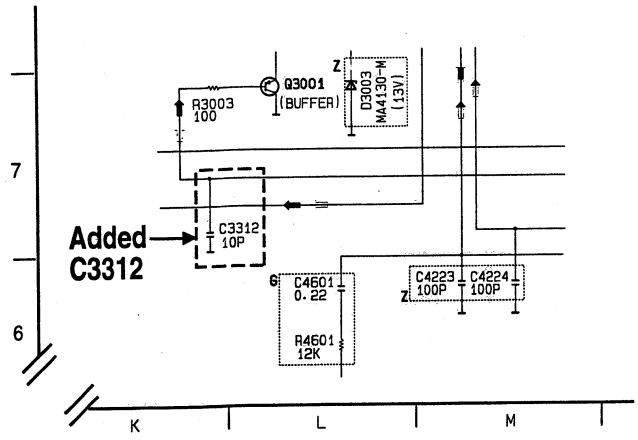
Main II Partial Schematic Diagram

Model: D, G (page 3-9)



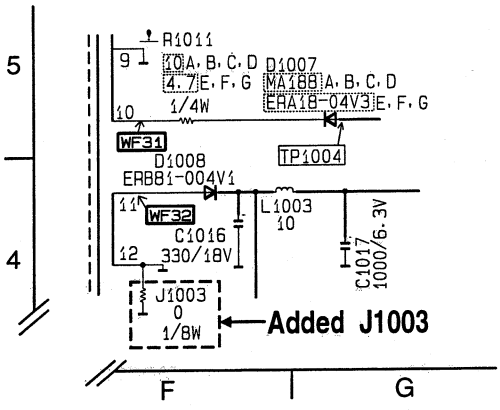
Main II Partial Schematic Diagram

Model: D, G (page 3-9)



Main III Partial Schematic Diagram

All models (page 3-10)

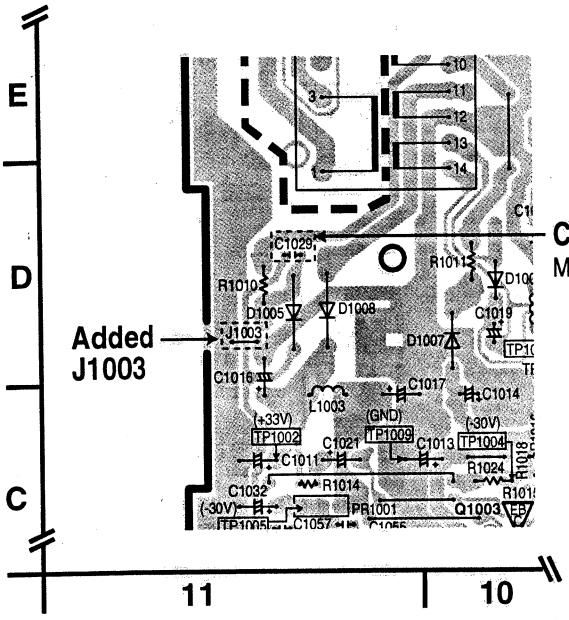


Circuit Board Layout

The Circuit Board Layout of Main C.B.A. on pages 4-1 ~ 4-2, 4-5 ~ 4-6 have been corrected as follows.

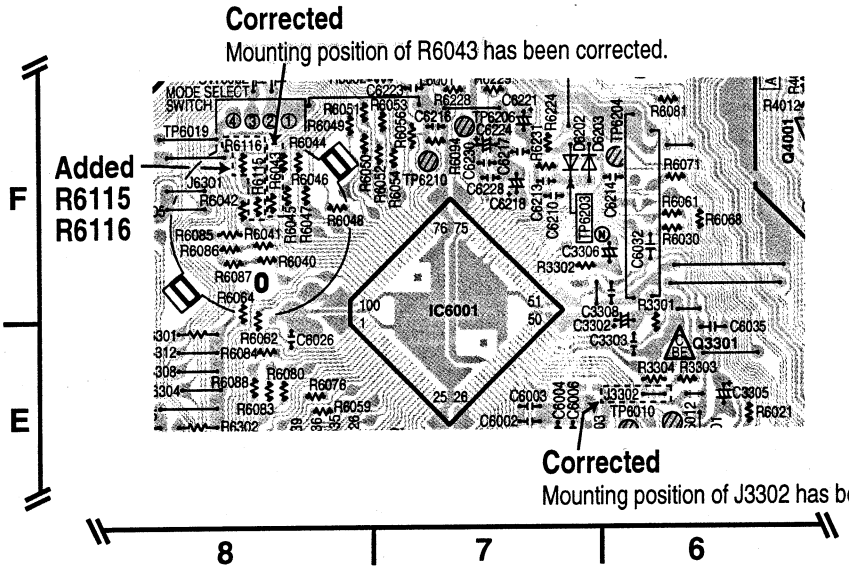
Main Partial Circuit Board Layout

Model: A, B, C, E, F (page 4-1)
Model: D, G (page 4-5)



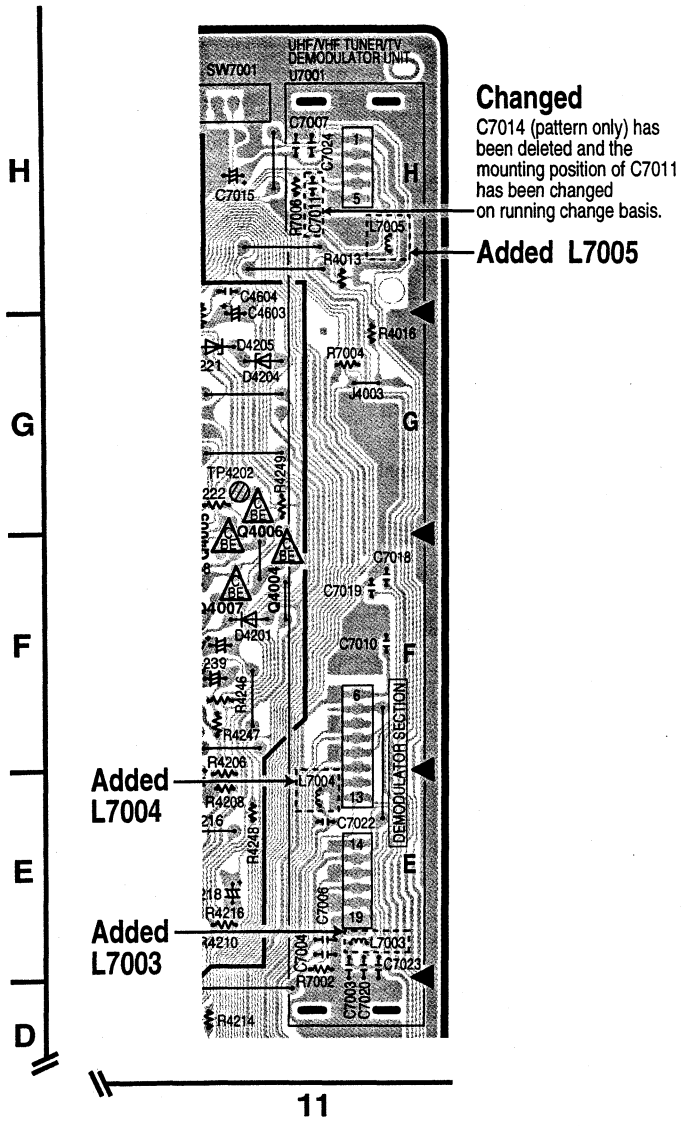
Main Partial Circuit Board Layout

Model: A, B, C, E, F (page 4-1)
Model: D, G (page 4-5)



Main Partial Circuit Board Layout

Model: A, B, C, E, F (page 4-2)



Model: D, G (page 4-6)